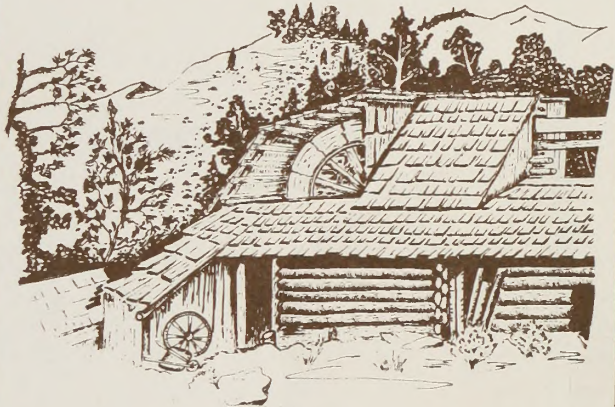
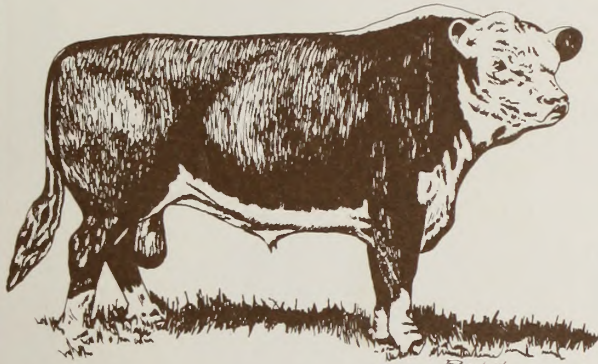


# FINAL HENRY MOUNTAIN GRAZING

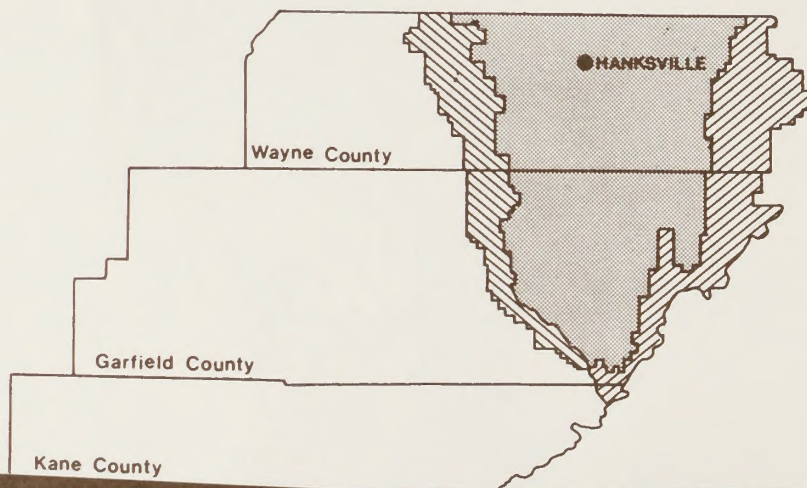
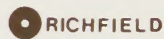


## ENVIRONMENTAL IMPACT STATEMENT

RICHFIELD DISTRICT  
BUREAU OF LAND MANAGEMENT  
U.S. DEPARTMENT OF INTERIOR  
May, 1983

# UTAH

## HENRY MOUNTAIN PLANNING AREA



ON THE COVER: One of the last wild and free-roaming bison herds in the United States graze together with domestic cattle in the Henry Mountains. Their natural environment is illustrated by Factory Butte, a prominent landmark near Hanksville. Also drawn is the historic Wolverton Mill, constructed near Mt. Pennell about 1918.

Cover illustrations by Rod Lister; design by Ed Bovy. Text wildlife illustrations by Rod Lister and Susan Lowe. Plant illustrations courtesy of Jennifer Shoemaker.



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ENVIRONMENTAL IMPACT STATEMENT

Prepared by  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT  
RICHFIELD DISTRICT

*Richard Robinson*

State Director  
Utah State Office

**Abstract:** The Bureau of Land Management proposes to update and revise the grazing management program within the Henry Mountain Planning Area. The program would provide vegetation to livestock, big game, and wild burros. The alternatives included in this environmental impact statement recommend levels of livestock grazing, identify needed rangeland improvements, and outline a schedule of implementation. Measures to protect or enhance environmental resources have been incorporated into the program. Alternatives considered in addition to (A) Proposed Action: No Change--Permit Livestock/Big Game Grazing at Current Average Levels of Use, include: (B) No Action--Maintain Existing Forage Allocation; (C) Manage for Optimum Big Game Production; (D) Manage for Optimum Livestock Production; and (E) Preferred Alternative--Management Framework Plan Step 2 Planning Recommendation. A concise description of the affected environment and an analysis of the environmental consequences resulting from each alternative are included in the document.

**For Further Information Contact:** Dee R. Ritchie, EIS Team Leader, Richfield District Office, Bureau of Land Management, 150 East 900 North, Richfield, Utah 84701, or call (801) 896-8221.

Comments on this Final EIS are Due: June 28, 1983

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UNITED STATES DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT  
SPECIALIST REPORT

Final Report

Final Report  
Final Report

The Bureau of Land Management (BLM) is responsible for managing the public lands of the United States. This report provides a detailed account of the BLM's activities and accomplishments over the past year. The report is organized into several sections, including a summary of the BLM's mission and goals, a description of the BLM's organizational structure, and a detailed account of the BLM's activities and accomplishments. The report also includes a list of the BLM's major projects and a list of the BLM's major accomplishments. The report is intended to provide a comprehensive overview of the BLM's activities and accomplishments for the past year.

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Comments on this report may be sent to the BLM.



## **LIST OF AGENCIES, ORGANIZATIONS, AND PERSONS TO WHOM COPIES OF THIS FINAL EIS WILL BE SENT:**

**BLM requested comments on the Draft EIS from all affected grazing permittees, interested individuals, and the following agencies and interest groups:**

### **Federal Agencies**

- Department of Agriculture
  - Agricultural Stabilization and Conservation Service
  - Forest Service
  - Soil Conservation Service
- Department of the Interior
  - Geological Survey
  - Fish and Wildlife Service
  - Bureau of Mines
  - Bureau of Reclamation
  - National Park Service
    - Canyonlands National Park
    - Capitol Reef National Park
    - Glen Canyon National Recreation Area
- Office of the Solicitor
- Department of Commerce
- Advisory Council on Historic Preservation
- Environmental Protection Agency

### **Utah State Agencies**

- State of Utah
  - Clearinghouse
  - Department of Natural Resources
  - Division of Water Resources
  - Division of Wildlife Resources
  - Division of Lands
  - Division of Oil, Gas, and Mining
- University of Utah
- Utah State University

### **Local Agencies**

- Six County Organization
- Five County Organization
- Garfield County Commission
- Kane County Commission
- Wayne County Commission

### **Nongovernment Organizations**

- Audubon Society
- Brigham Young University
- Common Cause
- Council on Utah Resources
- Defenders of the Outdoor Heritage
- Defenders of Wildlife
- Friends of the Earth
- League of Women Voters
- National Council of Public Land Users
- National Parks and Recreation Association
- National Stock Growers' Association
- National Wildlife Federation
- National Woolgrowers' Association
- Natural Resources Defense Council
- Nature Conservancy
- Pro-Utah Inc.
- Public Lands Council
- Save Our Canyons Committee
- Sierra Club

- Slick Rock County Council
- Society for Range Management
- Source
- The Wilderness Society
- The Wildlife Society
- Utah Cattlemen's Association
- Utah Council, Trout Unlimited
- Utah Farm Bureau
- Utah Sportsmen Association
- Utah Archaeological Society
- Utah Gem and Mineral Society
- Utah Water Pollution Control Association
- Utah Wilderness Association
- Utah Wildlife and Outdoor Recreation Federation
- Utah Woolgrowers' Association
- Wild and Scenic Rivers

### **Congressional**

- Utah Delegation

### **Interested/Affected Individuals**

- Permittees
- Private Landowners

### **EIS Availability**

**Copies of this Final EIS will be available for public inspection at the BLM offices listed below:**

#### **Washington Office of Public Affairs**

18th and C Street, N.W.  
Washington, D.C. 20240

#### **Utah State Office**

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136 East South Temple  
Salt Lake City, Utah 84111  
Phone: (801) 524-4227

#### **Richfield District Office**

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#### **Henry Mountain Resource Area**

Hanksville, Utah 84734  
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# SUMMARY

## INTRODUCTION

The five alternatives were developed as part of the management framework plan (MFP) update and as part of the Bureau of Land Management-Natural Resources Defense Council schedule. The Rangeland Program Summary on this action will be issued in the fall of 1983, following public involvement.

The purpose of the action is to review, update, and revise the grazing management program in the Henry Mountain Planning Area. The objective of the program is to maintain and/or enhance vegetation, livestock grazing, recreation, wildlife, watershed, and other resources.

The Henry Mountain Planning Area is part of the Henry Mountain Resource Area, which is administered by the Bureau of Land Management (BLM) office at Hanksville, Utah. The planning area is located in southeastern Utah on the Colorado Plateau. It is bordered on the north by the Wayne-Emery County line, on the west by Capitol Reef National Park, and on the south and east by the Colorado River and Canyonlands National Park. The Henry Mountain Resource Area administers grazing on 1.9 million acres: of these, 69 percent are BLM, 21 percent are National Park and National Recreation Areas (NRA); 9 percent are State; and 1 percent are private.

Elevations in the planning area range from 3,700 feet at Lake Powell to 11,615 feet on Mt. Ellen. Annual precipitation varies from less than 5 inches at Hanksville to more than 30 inches in the Henry Mountains. The area contains both mountain and desert life forms. The diverse vegetation ranges from Douglas fir, Gambels oak, and sagebrush in the mountains and foothills to shadscale and blackbrush below 6,000 feet.

Area uses include livestock grazing, mining, oil and gas exploration, hunting, camping, sightseeing, hiking, and off-road vehicle (ORV) use. The local economy relates directly to these uses. The area provides yearlong habitat for deer, bison, antelope, bighorn sheep, wild burros, and small and non-game species.

## THE PLANNING PROCESS

The planning documents were updated in 1980-82 in accordance with BLM Manuals 1601-1608. The planning system's MFP Step 2 Recommendation and other alternatives analyzed in this environmental impact statement (EIS) evolved through the BLM's interdisciplinary planning process.

During the planning process, the 22 grazing allotments were grouped into three categories based on habitat condition and trend, potential for improvement, resource use conflicts, positive return on investments, and effectiveness of present management. These categories are:

Category	Allotments	Percent of Planning Area
Maintain	7	36
Improve	11	36
Custodial	4	17

Five areas (11 percent of the planning area) are unallotted for livestock grazing.

## SCOPING AND AREAS OF CONTROVERSY

The scoping of issues was initiated in May 1978 and updated and revised in May 1980 when the preplanning analysis session was held. The Notice of Intent to prepare an EIS was placed in the *Federal Register* in July 1981. Meetings were held on August 25 and 26, 1981 to solicit public issues and concerns.

The most controversial issue arising in the meetings and in other discussions with individuals was forage use by bison, deer, wild burros, and livestock. Other important issues included the amount and kind of rangeland improvements needed to meet present and future needs; oil, gas, and mineral development; and land use conflicts such as urban (town site) and recreation developments in important areas of livestock and wildlife use. The social and economic impacts to the livestock industry resulting from changes in allotment use were also identified as issues.

## ALTERNATIVES ANALYZED

The alternatives analyzed were developed from the multiple-use recommendations in the MFP Step 2, specialists' recommendations in the MFP Step 1, and the existing situation. Resolution of conflicts between resources was used as a basis for developing the MFP Step 2 Planning Recommendation Alternative.



The alternatives analyzed are (A) Proposed Action: No Change—Permit Livestock/Big Game Grazing at Current Average Levels of Use; (B) No Action—Maintain Existing Forage Allocation; (C) Manage for Optimum Big Game Production; (D) Manage for Optimum Livestock Production; and (E) Preferred Alternative—MFP Step 2 Planning Recommendation.

The levels of livestock and big game use analyzed under each alternative are shown in Summary Table 1 and Figure 1.

## ENVIRONMENTAL CONSEQUENCES

### Vegetation

*Alternative A: Proposed Action—No Change:* Allotment analysis based on monitoring and trend studies, supported by a recent soil-vegetation inventory, indicates that continuing the present level of use would adversely affect forage production and rangeland condition on six allotments and one unallotted area, about 14 percent of the planning area. The period or pattern of use or distribution is also a problem on portions of at least five other allotments.

*Alternative B: No Action:* The level of use that would occur with livestock grazing at active preference and bison and deer use at forage reservations would exceed grazing capacity on 17 allotments, one unallotted area, and portions of four other allotments. This alternative could adversely affect forage production and rangeland condition on 56 percent of the planning area.

*Alternative C: Optimize Big Game:* In the short term, bison use would continue to adversely affect grazing capacity and rangeland condition on one unallotted area, less than 1 percent of the planning area. In addition, overutilization would continue on portions of four other allotments because of the period or pattern of use or distribution of livestock.

*Alternative D: Optimize Livestock:* Forage use would not exceed total indicated grazing capacity on any allotment. In the short term, localized adverse impacts to forage production and rangeland condition would continue on portions of five allotments because of the period or pattern of use or distribution of livestock.

*Alternative E: Preferred Alternative—Planning Recommendation:* In the short term, bison use would continue to adversely impact forage production and rangeland condition on one unallotted area, less than 1 percent of the planning area. In addition, localized overutilization would continue on portions of six allotments because of the period or pattern of use or distribution of livestock and bison.

### Soils and Water Resources

Under Alternative A, erosion and sediment yield could increase, thus increasing runoff on portions of 11 allotments and one unallotted area. Erosion and sediment yield could increase under Alternative B, resulting in increased runoff on portions of 21 allotments and one unallotted area. Under Alternatives C, D, and E erosion and subsequently, runoff, could temporarily increase on areas receiving land treatments; however, as vegetation improved, erosion would decrease.

### Animal Life

The major impact to existing big game numbers would be the elimination of bison under Alternative D and of antelope and bighorn sheep under Alternative B. Alternative C would provide the largest forage use for big game. Bison numbers could reach the Utah Division of Wildlife Resources' (UDWR) long-range management goal under Alternative C. Alternative E would provide forage increases for mule deer, antelope, and desert bighorn sheep. Bison numbers would decrease under this alternative.

The major finding in the analysis of impacts to big game is that the summer diets for deer and antelope in the Henry Mountains are probably not nutritionally suitable for increased production. In the long term, with rangeland improvements (including land treatments) favoring high quality big game forage, the quality of crucial summer range would be enhanced. Under no alternative, however, could prior stable deer numbers and/or UDWR's long range management goals for antelope be obtained.

### Visual Resources

Under Alternative A, the visual resources on three allotments and one unallotted area would be affected by overgrazing, and VRM objectives might not be met. The areas affected rate high in scenic quality and visual sensitivity. Alternative B would have the greatest impact on visual resources. Overgrazing on 13 allotments and one unallotted area (47 percent of the planning area) could cause progressive deterioration of visual resources along major travel routes and in the areas of highest scenic qual-



ity and visual sensitivity, including portions of Glen Canyon NRA and Capitol Reef National Park. The impacts under Alternatives C, D, or E would be nearly identical, with the possibility of rangeland improvements not meeting VRM objectives on 16 allotments and one unallotted area. The areas affected would constitute less than 2 percent of the planning area; however, most of these land treatments would be in areas rated highest in scenic quality (Mt. Ellen/Mt. Pennell). Recovery from the impacts of prolonged overgrazing and land treatments could take up to several decades in VRM Class II areas. The impacts from reservoir construction would last into the long term.

### Wilderness

Impacts to wilderness resource values would generally correspond to those identified in the Visual Resources section above. Prolonged overgrazing and construction of rangeland improvements could violate BLM Interim Management Policy (IMP) non-impairment criteria and affect wilderness values. Therefore, construction of some of the proposed rangeland improvements (Alternatives C, D, and E) would have to be delayed until Congress decides which wilderness study areas (WSAs) to include in the National Wilderness Preservation System (NWPS) and which to release from IMP management. Under Alternative A, overgrazing could violate non-impairment criteria in two WSAs and proposed wilderness in Capitol Reef National Park. Under Alternative B, six WSAs and proposed wilderness in Glen Canyon NRA and Capitol Reef National Park could be affected by overgrazing. However, as stated above, BLM policy would not allow overgrazing which, in the long term, would impair wilderness values.

### Recreation

Under Alternative A, recreation values on three allotments and one unallotted area would be affected by overgrazing. Under Alternative B, overgrazing would affect recreation values on 12 allotments and one unallotted area. Rangeland improvements under Alternatives C, D, and E would impact sightseeing and primitive values. Improvements in wildlife habitat under Alternatives C and E would improve hunting for big game. Elimination of the bison herd under Alternative D would significantly affect hunting and sightseeing values.

### Cultural Resources

Ground disturbance during construction of rangeland improvements under Alternatives C, D, and E could inadvertently destroy or damage cultural resources. This would result in loss of scientific and educational information. However, intensive cultural resource inventories prior to any ground-disturbing actions could identify previously unknown sites and areas and increase knowledge of cultural resources.

### Land Use Plans and Controls

No conflict between any alternative and existing local, State, or Federal land use plans and controls would occur.

### Livestock Grazing

Alternative A (Proposed Action) would result in the greatest reduction to active preference. Alternatives A and B would both result in overgrazing, which violates BLM Manual 43 CFR 4110 regulations and could not be sustained by the livestock permittees in today's competitive market. Alternative C would cause the most disruption to individual permittees. Alternative D would result in the greatest benefit to permittees, with the greatest advantage to permittees having sheep. Considering multiple-use management, Alternative E provides a relatively high benefit with increases above average licensed use to 36 of the 58 livestock permittees.

### Socioeconomics

Under Alternatives A, C, D, and E, with the exception of reductions in permits and, thus, in ranch capital values, impacts to average ranch budgets and the regional economy are positive. Alternative B, which would result in the most overgrazing of any of the alternatives, could have positive economic impacts in the short term, but would result in negative impacts in the long term. Alternatives D and E show positive economic impacts for permittees and the region without causing negative economic impacts from overgrazing.

Regional economic impacts from changes in hunting would be less than plus or minus 1 percent in all alternatives.



# SUMMARY

TABLE 1  
Alternative Comparisons

		Proposed Use (AUMs)				
		Alternatives				
	Current Use	A	B	C	D	E
<u>Livestock<sup>a</sup></u>						
Cattle	30,490	30,490	50,678	35,722	46,677	42,006
Sheep	458	458	5,607	4,082	12,851	8,481
Subtotal	30,948	30,948	56,285	39,804	59,528	50,487
<u>Big Game</u>						
Bison	2,696	2,696	2,400	3,768	0	2,088
Deer	2,246	2,246	4,800	6,127	2,323	5,641
Antelope	87	87	0	960	87	695
Bighorn Sheep	75	75	0	3,968	2,336	3,930
Burros	100	100	100	100	100	100
Subtotal	5,204	5,204	7,300	14,923	4,846	12,454
Total	36,152	36,152	63,585	54,727	64,374	62,941
<u>Rangeland Improvements<sup>b</sup></u>						
Land Treatments (acres)				24,300	24,300	24,300
Primary Value for Livestock (acres)				20,000	20,000	20,000
Primary Value for Big Game (acres)				4,300	4,300	4,300
Springs (each)				18	18	18
Reservoirs (each)				119	119	119
Pipelines (miles)				37	37	37
Troughs (each)				38	38	38
Vertical Wells (each)				6	6	6
Horizontal Wells (each)				2	2	2
Corral (each)				1	1	1
Fence (miles)				17	17	17
Cattle Guards (each)				2	2	2
Big Game AUMs From Land Treatments				2,552	0	560
Livestock AUMs From Land Treatments				423	2,975	2,415

Source: USDI, BLM, 1982a. These tables are summaries of Tables 2-2 and 2-4

<sup>a</sup>BLM and Glen Canyon NRA lands only; figures not included for Capitol Reef National Park. No alternative would affect active preference or average licensed use on Capitol Reef National Park.

<sup>b</sup>No rangeland improvements are proposed under Alternatives A or B.



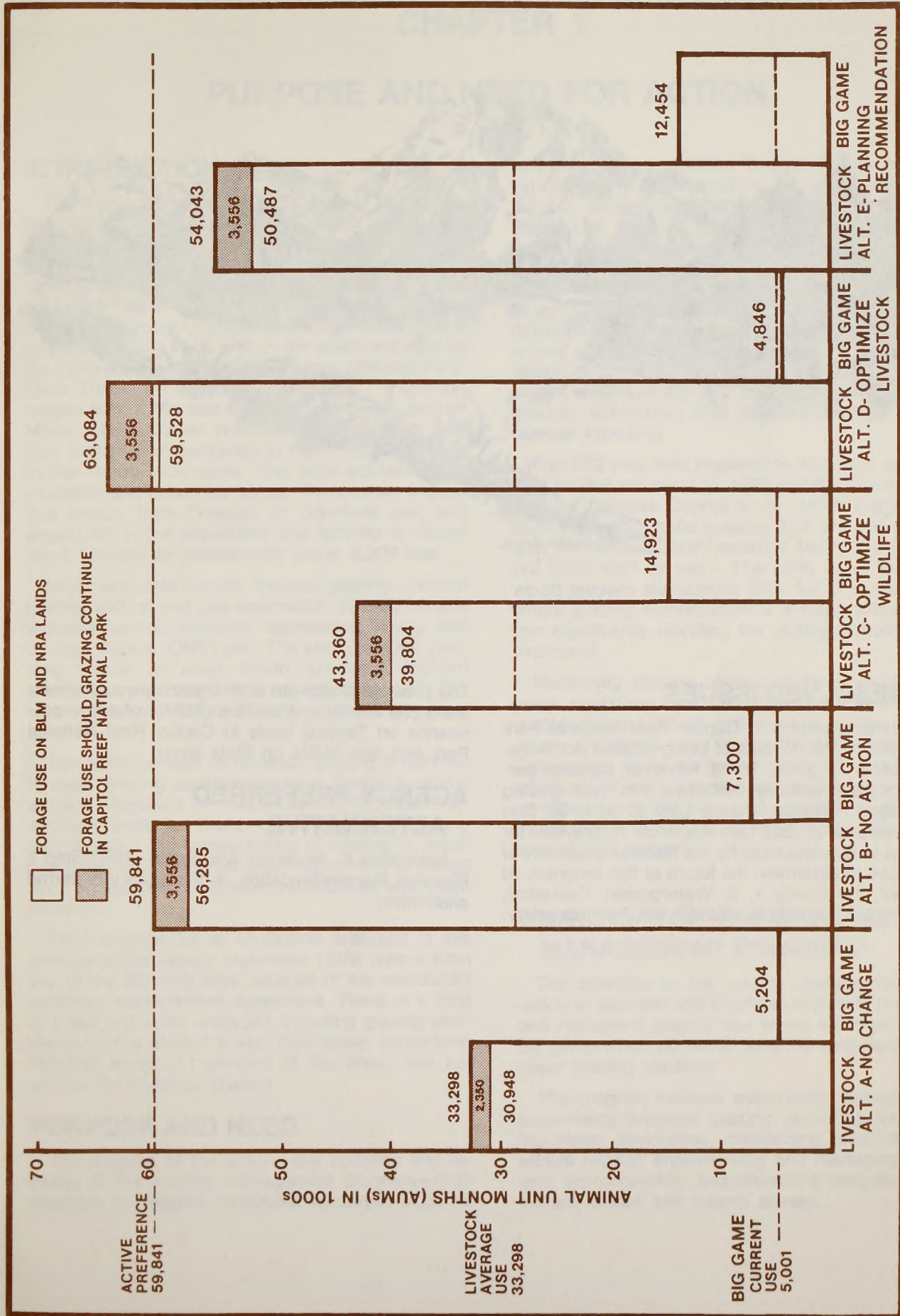


FIGURE 1  
FORAGE USE BY ALTERNATIVE





### UNRESOLVED ISSUES

Livestock grazing in Capitol Reef National Park has been in the process of being phased out (Ninety-Second Congress, 1971). However, livestock permittees have recently petitioned that their grazing privileges continue. Public Law 97-341, 96 Stat 1639, passed in 1982 (see Appendix 1), provides for studies to be conducted by the National Academy of Sciences to determine the future of this program. At present, the Sandy 1, 2, Waterpocket, Cathedral, and Hartnet Allotments straddle the Park boundary.

The possible phase-out of this grazing would eliminate 3,556 animal unit months (AUMs) of active preference on Federal lands in Capitol Reef National Park and 458 AUMs on State lands.

### AGENCY-PREFERRED ALTERNATIVE

Alternative E, Preferred Alternative—MFP Step 2 Planning Recommendation, is the agency-preferred alternative.



# CHAPTER 1

## PURPOSE AND NEED FOR ACTION

### INTRODUCTION

The Henry Mountain Planning Area is part of the Henry Mountain Resource Area, which is administered by the Bureau of Land Management (BLM) office at Hanksville, Utah. The planning area is located in southeastern Utah in the Colorado Plateau area (see Figure 1-1). It is bordered on the north by the Wayne-Emery County line, on the west by Capitol Reef National Park, and on the south and east by the Colorado River and Canyonlands National Park. (See Table 1-1 for land ownership.) Elevation ranges from 3,700 feet at Bullfrog to 11,615 feet on Mount Ellen. Annual precipitation varies from less than 5 inches at Hanksville to more than 30 inches in the Henry Mountains. The area contains both mountain and desert life forms. The diverse vegetation ranges from Douglas fir, Gambels oak, and sagebrush in the mountains and foothills to desert shrub (shadscale, blackbrush) below 6,000 feet.

Major land uses include livestock grazing, uranium mining, and oil and gas exploration. Recreation use includes hunting, camping, sightseeing, hiking, and off-road vehicle (ORV) use. The area provides year-long habitat for deer, bison, antelope, bighorn sheep, and other small and non-game species. The local economy relates directly to the major land uses.

The administration of livestock grazing is handled through grazing allotments and a livestock permit system. There are 22 allotments with proposed forage use levels for livestock and big game grazing (see Figure 1-2). Administration of allotments which cross district boundaries (see Figure 1-1) is based upon an agreement between the Richfield and Moab Districts.

Total acreage for all allotments analyzed in this environmental impact statement (EIS) differs from that of the planning area because of the interdistrict allotment management agreement. There is a total of 1,893,272 acres analyzed, including grazing allotments and unallotted areas. Five areas, comprising 199,856 acres (11 percent of the area), are not allotted for livestock grazing.

### PURPOSE AND NEED

The purpose of the action—the updating and revising of the grazing management program—is to maintain or improve rangeland resources such as

soil, water, and vegetation through the use of grazing management. As required by law (Taylor Grazing Act, 1934; Classification and Multiple Use Act, Public Law 88-6071, 1964; and the Federal Land Policy and Management Act of 1976), BLM is responsible for management “in a manner that will protect the land and its resources from destruction or unnecessary injury, stabilize the livestock industry dependent on public lands, and provide for the orderly use, improvement, development, and rehabilitation of the public lands for livestock grazing consistent with multiple use, sustained yield, environmental, economic, and other objectives” (BLM Manual 4100.0-2).

This EIS was also prepared in response to a suit filed in Federal court in 1973 by the National Resources Defense Council et al., which alleged that BLM's programmatic grazing EIS did not comply with the National Environmental Policy Act (NEPA) (42 USC 4321 et seq.). The court ruled that BLM would prepare site-specific EISs for all public lands where grazing authorization is a major Federal action significantly affecting the quality of human environment.

Monitoring studies conducted for more than 10 years, supported by a soil-vegetation inventory conducted during 1978-80, indicate that grazing use on some allotments may exceed forage production. Conversely, some allotments have the potential for additional grazing use through modification of current grazing systems and/or rangeland improvements. Other allotments are in good condition under present management.

### OBJECTIVE OF THE GRAZING MANAGEMENT PROGRAM

The objective of the grazing management program is to maintain and improve rangeland conditions and implement grazing use levels for livestock and big game which do not exceed the rangeland's indicated grazing capacity.

The program involves authorizing, managing and supervising livestock grazing; providing forage for big game; developing, maintaining, and improving wildlife habitat; implementing and managing rangeland improvements; and protecting rangeland from human-caused and natural abuses.



# CHAP. 1 — PURPOSE AND NEED

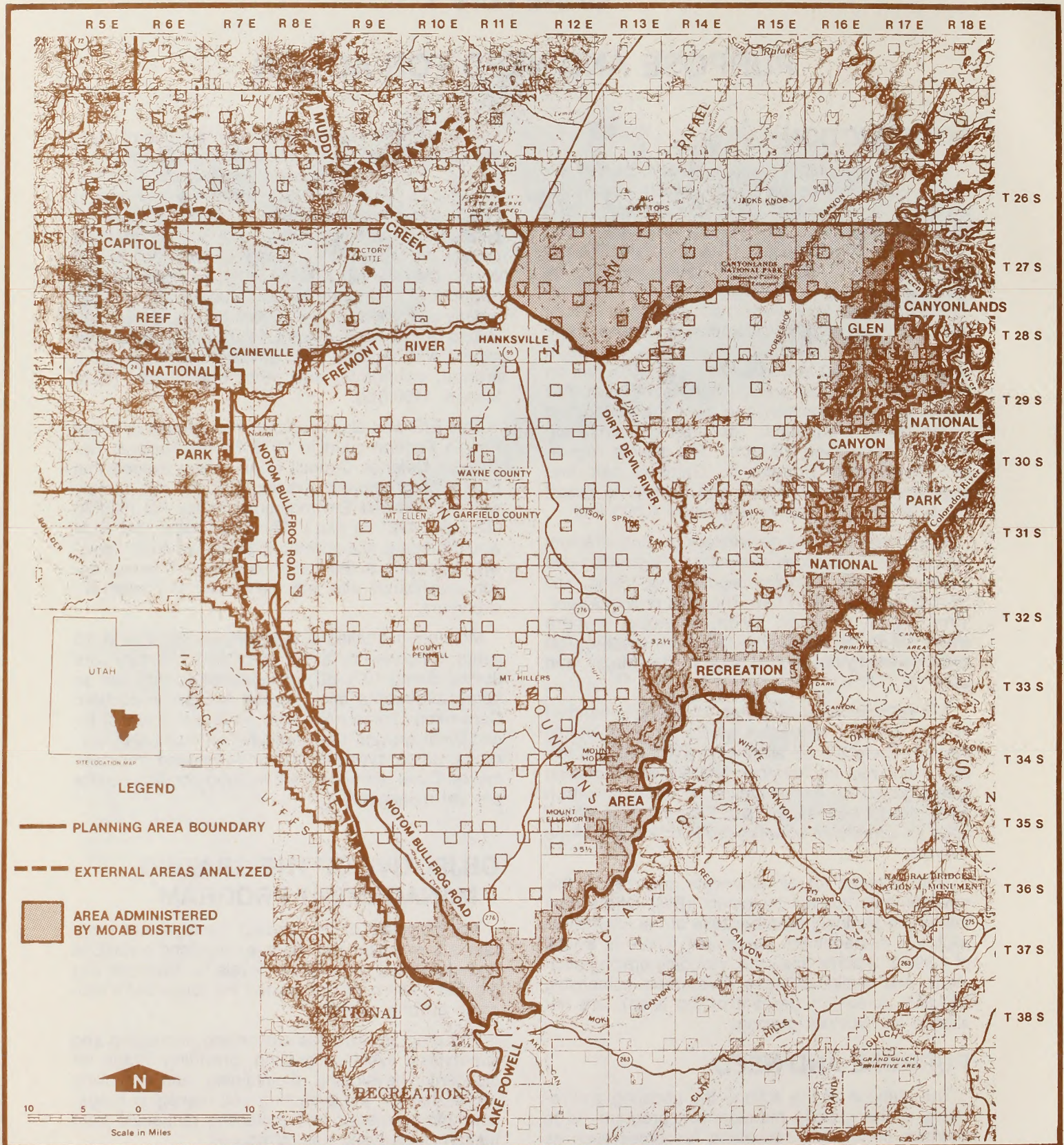




TABLE 1-1  
Land Ownership

Ownership	Acres
Federal	
Public Lands (BLM Administered)	1,312,021
Glen Canyon National Recreation Area <sup>a</sup>	265,965
Capitol Reef National Park <sup>a</sup>	126,755
State	172,995
Private	<u>15,536</u>
Total	1,893,272

Source: USDI, BLM, 1982a.

<sup>a</sup>BLM administers the livestock grazing program in these areas.

TABLE 1-2  
Classification of Allotments into M I C Categories

M (Maintain)	I (Improve) <sup>a</sup>	C (Custodial)
Bullfrog	Nasty Flat	Cathedral
Burr Point	Pennell	Hartnet
Hanksville	Sandy 2	Sandy 3
North Bench	Sawmill Basin	Waterpocket
Robbers Roost	Crescent Creek	
Sewing Machine	Steele Butte	
Wild Horse	Rockies	
	Trachyte	
<u>(Unallotted Areas)</u>	Cedar Point	
	Sandy 1	
Dry Lakes	Blue Bench	
Flint Trail		
Little Rockies		
North Caineville Mesa		
South Caineville Mesa		

Source: USDI, BLM, 1982a.

<sup>a</sup>Allotments are in order of priority for implementation of rangeland improvements, subject to the availability of funds.



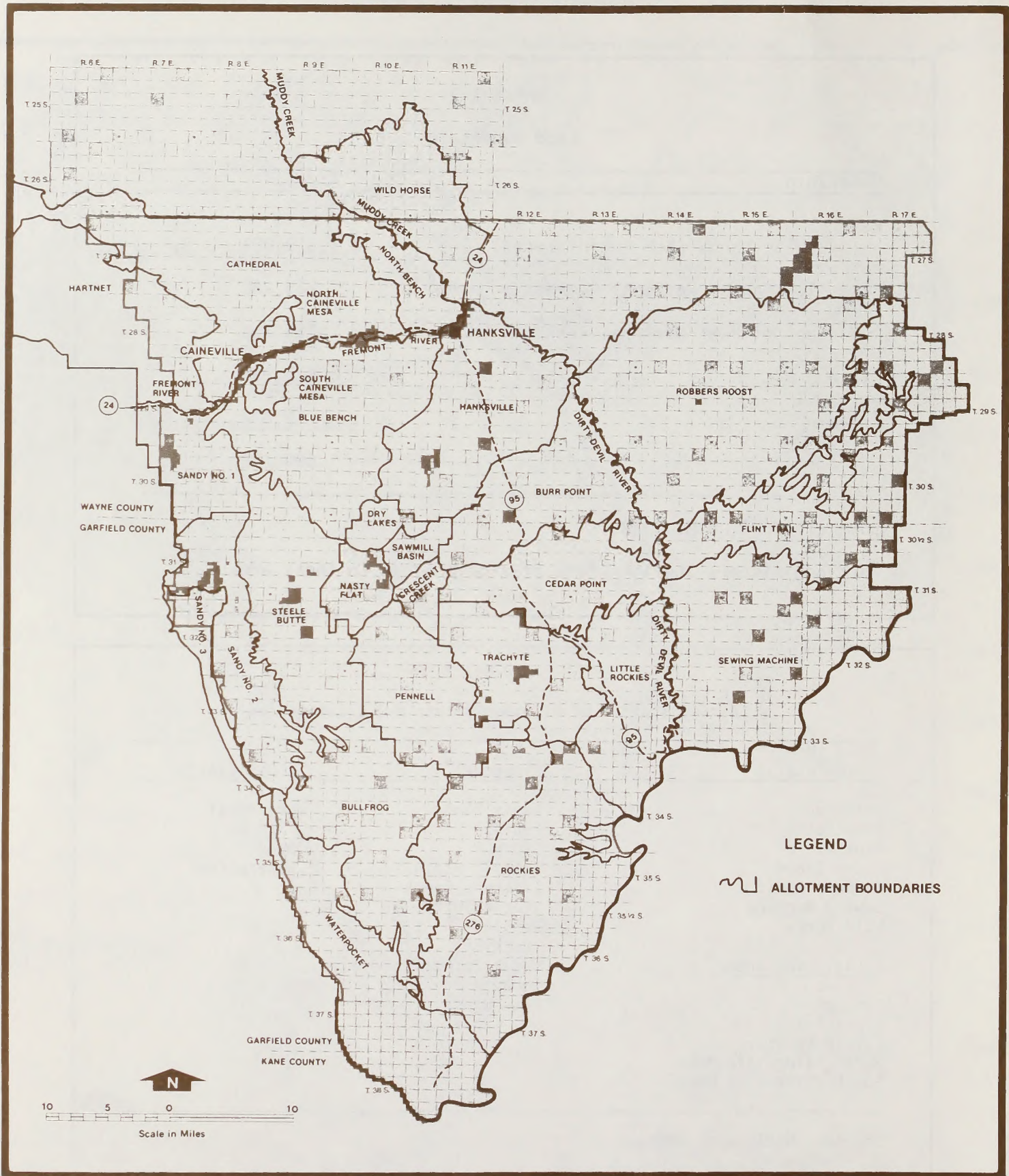


FIGURE 1-2  
GRAZING ALLOTMENTS



All legally protected resources (i.e., threatened and endangered species, wild horses and burros, and cultural resources) will be considered during development of this grazing management program.

## THE PLANNING PROCESS

The planning documents were updated in 1980-81 in accordance with BLM Manuals 1601-1608. These manuals provide guidance for land use and resource allocation on public lands. The proposed action and alternatives analyzed in this EIS evolved through the BLM's planning process, as outlined in Figure 1-3. This EIS was prepared by an interdisciplinary team.

During the planning process, grazing allotments were grouped into three categories based on ecological condition and trend, potential for improvement, resource use conflicts, positive return on in-

vestments, and effectiveness of present management (see Table 1-2). These categories and objectives are:

*Category M (Maintain):* No special management needs noted—allotments are in satisfactory condition and no major conflicts are evident. Permittees will be encouraged to invest in rangeland improvement projects which would enhance their use of the allotment.

*Category I (Improve):* This category will receive first priority for rangeland improvements as funding becomes available. Special management actions are needed—major resource conflicts and/or other grazing problems exist, but allotments have potential for improved productivity and positive return on investments. Permittees will be encouraged to invest in rangeland improvement projects which would enhance their use of the allotments.

### *Steps in BLM's Planning Process*

1. *Land and Resource Inventory Data* is collected on current resource supply and production, condition, and trend. Data is collected in the following land use categories: lands, minerals, forest products, rangeland management, watershed, wildlife habitat, recreation, and wilderness. Additional physical data, including topography, climate, geology, soils, vegetation, erosion condition, hazards, developments, and access are also collected.

2. An *Unit Resource Analysis (URA)*, containing a summary of the resource inventories and a discussion of the physical profile (soils, geology, climate, etc.), is prepared next. This document also describes current land uses, forage production, trend, and condition. In addition, projections for potential resource enhancement, improvement, and production are developed.

3. A *Planning Area Analysis (PAA)*, a collection and analysis of socioeconomic data, is prepared simultaneously with the URA. The PAA contains economic demand projections for each resource and social value analyses.

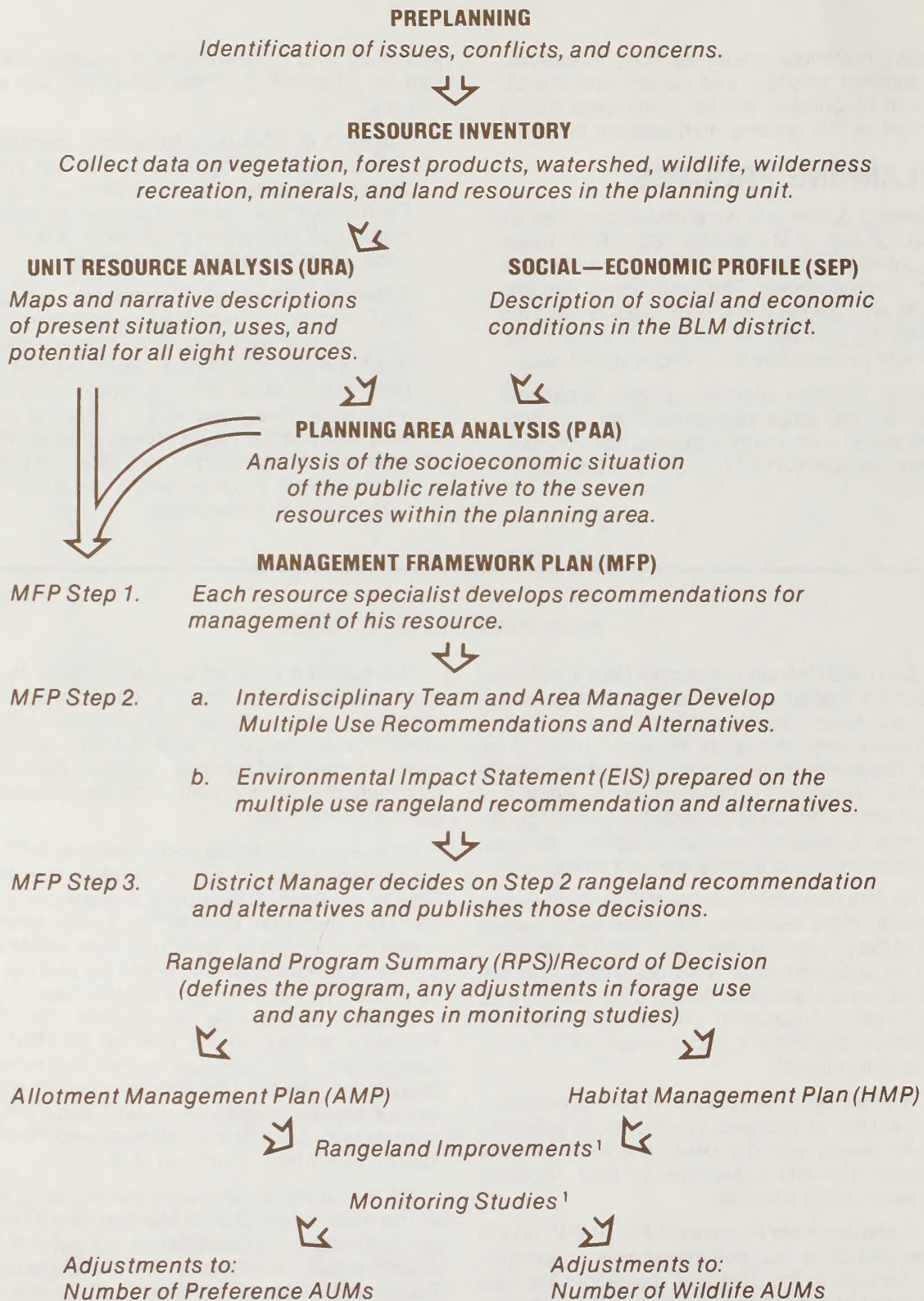
4. A *Management Framework Plan (MFP)* is next developed using resource management opportunities identified in the URA and socioeconomic data presented in the PAA. It is organized around the eight categories listed in the Land and Resource Inventory section.

The first step in developing the MFP is to protect each resource independently, considering resource capability, technical feasibility, physical limitations, laws, regulations, policy, and demand. Conflicts between existing and potential uses are then identified by an interdisciplinary team under the direction of the BLM area manager.

Whenever a conflict is encountered in MFP Step 1 recommendations, the team studies the land use options available. Based on a multiple-use analysis, the area manager selects the option which best meets management objectives and identifies any trade-offs or compromises made as a result of that selection. The product is the MFP Step 2 recommendation. Public input is collected and analyzed (including analysis in the EIS) on all MFP recommendations, and final multiple-use decisions (MFP Step 3) are made. The decisions on all resources except grazing management and wilderness were published in "Multiple-Use Management Decisions—Henry Mountain Planning Area"

The decisions on the grazing management program will be made by the District Manager and Area Manager following the publication of a Final EIS. These decisions will be published in the "Record of Decision/Rangeland Program Summary" which will identify specific objectives, forage use, and rangeland improvement projects by allotment.





<sup>1</sup> *Dependent on legislative funding.*

**FIGURE 1-3**  
**BLM PLANNING PROCESS**



*Category C (Custodial):* No special management actions feasible—allotments have no or limited improvement or investment potential. Present management appears satisfactory or is the only logical practice under existing resource conditions. Permittees will be encouraged to invest in rangeland improvement projects which would enhance their use of the allotment.

Allotments placed under one of the above categories can be shifted to another category if survey data, monitoring, public comment, or other pertinent facts warrant the change.

## SCOPING

Scoping is the identification of issues, concerns, interrelationships, and possible alternative courses of action. Furthermore, it is a way for BLM to consult with affected or concerned parties. Significant issues are identified during this process.

Scoping began in 1978 when BLM specialists met to identify significant issues. These issues were refined in 1980 when BLM sent a public involvement guidebook to over 400 organizations and individuals. The Notice of Intent to prepare this EIS was published in the *Federal Register* in July 1981. Scoping meetings to solicit public concerns and issues to be analyzed in this EIS were held on August 25, 1981 in Hanksville and on August 26, 1981 in Salt Lake City.

The most important issue arising in the meetings and in other discussions was the proposed forage use by bison, deer, wild burros, and livestock. Some felt that livestock should be given more forage, while others felt that bison should receive more. Other important issues included the amount and kind of rangeland improvements needed to meet present and future needs, resolution of land use conflicts, and recreation use in critical or important areas of livestock and wildlife use. The social and economic impacts to the livestock industry resulting from changes in allotment use were also identified as concerns.

## ALTERNATIVES DISCUSSED

Five alternatives have been identified for discussion and analysis in this Final EIS. Under Alternatives C, D, and E, use by livestock and big game would not exceed forage production as measured by monitoring and trend studies, supported by a recent soil-vegetation inventory. Alternative A is the proposed action, and Alternative E is the agency-preferred alternative.

**Alternative A.** Proposed Action: No Change—Permit Livestock/Big Game Grazing at Current Average Levels of Use.

**Alternative B.** No Action—Maintain Existing Forage Allocation.

**Alternative C.** Manage for Optimum Big Game Production.

**Alternative D.** Manage for Optimum Livestock Production.

**Alternative E.** Preferred Alternative—MFP Step 2 Planning Recommendation.

## ALTERNATIVES DISMISSED

The elimination of livestock grazing was dismissed as an alternative because it did not meet the test of a reasonable alternative as directed by the Council on Environmental Quality Regulations (1978).



## INTERRELATIONSHIPS WITH OTHER AGENCIES, GROUPS, AND INDIVIDUALS

BLM-administered lands in the Henry Mountain Planning Area are interspersed with private- and State-owned lands. Additionally, National Park Service (NPS) administered lands adjoin the east and west perimeters of the planning area. This land ownership pattern makes close coordination necessary between land management agencies and private landowners to accomplish common goals and avoid resource use conflicts. Table 1-3 identifies interrelationships between the BLM rangeland management program and other groups and governmental agencies.



TABLE 1-3

Interrelationships of BLM Rangeland Management Program  
and Other Groups and Governmental Agencies

Agency/Group Relationship and Responsibility	Interrelationship
<u>FEDERAL AGENCIES</u>	
<u>Fish and Wildlife Service (FWS)</u>	
Responsible for protection of threatened and endangered plant and animal species and their habitat. Administers predator control program.	FWS issues a biological opinion on the effects of livestock grazing on endangered species involved in the action. BLM authorizes predator control on planning area allotments. The actual control work is done by the FWS under an on-going predator control program.
<u>National Park Service (NPS)</u>	
Administers Capitol Reef National Park and Glen Canyon National Recreation Area.	BLM administers the livestock grazing program within National Park Service administered lands.
<u>STATE AGENCIES</u>	
<u>Utah Division of Wildlife Resources</u>	
Responsible for wildlife numbers.	BLM is responsible for wildlife habitat. BLM cooperates with the Utah Division of Wildlife Resources to identify crucial ranges, current population estimates, and habitat for proposed transplant programs.
<u>Utah State Historic Preservation Officer</u>	
Coordinates the identification, evaluation, and protection of cultural resources within the State of Utah.	BLM requests consultation regarding Section 106 of the National Historic Preservation Act.
<u>Utah Division of State Lands and Forestry</u>	
Leases State-owned lands to private individuals to provide sustained income to the State.	BLM and Utah Division of State Lands and Forestry coordinate the leasing of State lands to those individuals having BLM grazing permits in allotments containing State lands.



# CHAPTER 2

## DESCRIPTION OF ALTERNATIVES

### INTRODUCTION

This chapter describes the alternatives to be analyzed and briefly compares the environmental consequences of each. The array of alternatives evaluates and compares different approaches to managing rangeland resources within the Henry Mountain Planning Area. The alternatives were developed from the multiple-use recommendations in Step 2 of the Management Framework Plan (MFP) and from resource specialists' recommendations in MFP Step 1. (See Figure 1-3 and Table 2-1 for evolution of the preferred alternative through the planning process.)

This chapter is divided into two sections. Section 1 describes each alternative in detail. The description includes: (1) the rationale used in development of the alternative; and (2) identification of change agents. (Change agents are those actions which can be controlled when managing rangeland resources. Examples are forage use by number and kind of animal, rangeland improvements, and livestock periods and patterns of use.) Section 2 describes administrative features common to all alternatives. Features include implementation and scheduling of rangeland monitoring programs; grazing administration practices; and standard design, construction, and operating features.

### DESCRIPTION OF ALTERNATIVES

Table 2-2 shows current and proposed big game and livestock forage use for each alternative. Summary Figure 1 and Table 2-3 compare forage use by alternative. Table 2-4 outlines rangeland improvements for Alternatives C, D, and E. No rangeland improvements were analyzed for Alternatives A and B. However, rangeland improvements could be implemented from Alternatives C, D, and E should either Alternative A or B be selected.

#### **Alternative A: Proposed Action: No Change—Permit Livestock/Big Game Grazing at Current Average Levels of Use**

This alternative is the proposed action and is the continuation of the present management situation, including maintaining current levels and patterns of big game and livestock use. The proposed action is for analysis purposes in this environmental impact statement (EIS) and is not the Bureau of Land Management's (BLM) preferred alternative.

Livestock use could continue at the average level established from 1976 to 1982. The years receiving the highest and lowest use were dropped and the remaining 5 years averaged to arrive at the average licensed use level. In addition, big game use would continue at current numbers, as determined by the Utah Division of Wildlife Resources (UDWR) and the BLM. Forage would be provided for existing numbers of wild burros. The present levels of grazing management and monitoring would continue. Rangeland improvements would be confined to maintenance of those structures, practices, and treatments already existing.

Under this alternative, proposed forage use on BLM and Glen Canyon National Recreation Area (NRA) lands would be as follows:

Livestock	30,948 AUMs
Bison	2,696 AUMs
Deer	2,246 AUMs
Antelope	87 AUMs
Bighorn Sheep	75 AUMs
Burros	100 AUMs

See Table 2-2 for proposed forage use by allotment.

#### **Alternative B: No Action—Maintain Existing Forage Allocation**

This alternative meets the National Environmental Policy Act (NEPA) requirement for analysis of the No Action Alternative. This alternative analyzes grazing at the active preference level for livestock, allowing for existing deer and bison reservations, and allowing for existing numbers of wild burros. Under this alternative, antelope and bighorn sheep would not be provided forage and would be removed. The present active preference levels of grazing management and monitoring would be maintained. Rangeland improvements would be confined to maintenance of those structures, practices, or treatments already existing.

Under this alternative, forage use on BLM and Glen Canyon NRA lands would be divided as follows:

Livestock	56,285 AUMs
Bison	2,400 AUMs
Deer	4,800 AUMs
Burros	100 AUMs



TABLE 2-1

Evolution of the Preferred Alternative Through the Planning Process

Livestock MFP Step 1 Recommendation	Recommendations That Conflict With the Livestock Recommendation	MFP Step 2 Planning Recommendation	Trade-Off
<b>Proposed Forage Use</b>			
Manage for optimum livestock production within existing allotments and other potential areas, using the soil-vegetation inventory as a basis and providing forage for wild burros and big game where use is compatible with livestock.		Manage rangeland to provide the best mix of livestock and big game to maintain or increase the forage available, using the soil-vegetation inventory as a basis.	Forage would be provided to allow for the most advantageous use.
1. Give livestock priority for forage use as follows:	1. Give big game priority for forage use as follows:	1. Optimize big game and livestock forage use as follows:	1. Livestock would not receive priority in forage use.
a. Provide 100 AUMs for wild burros as required by the Wild Horse and Burro Act on Robbers Roost Allotment.	a. No conflict.	a. Provide 100 AUMs for wild burros as required by the Wild Horse and Burro Act.	a. No change.
b. Provide 45,177 AUMs for cattle and 12,851 AUMs for sheep within established allotments (58,028 AUMs).	b. Provide forage not required for optimum big game production for livestock (35,722 AUMs for cattle and 4,082 AUMs for sheep). Eliminate sheep use on Rockies and Trachyte Allotments (39,804 AUMs).	b. Provide 42,006 AUMs for cattle and 8,481 AUMs for sheep within established allotments and use 1,332 AUMs on Flint Trail area on an as-needed basis for cattle (50,487 AUMs).	b. Livestock use would be limited. 7,541 AUMs would be foregone.
c. Provide 1,500 AUMs for cattle in unallotted Dry Lakes, Flint Trail, and Little Rockies Allotments.	c. Reserve unallotted areas for big game.	c. Reserve unallotted areas for big game except as specified above on Flint Trail.	c. Use of Dry Lakes and Little Rockies unallotted areas.
d. Provide 980 AUMs for bighorn sheep on cattle allotments and 1,356 AUMs on unallotted areas where conflicts with domestic sheep are not expected. Eliminate bighorn sheep use on Rockies and Trachyte Allotments.	d. Provide 2,612 AUMs for bighorn sheep on allotments and 1,356 AUMs on unallotted areas.	d. Provide 2,574 AUMs for bighorn sheep on allotments and 1,356 AUMs on unallotted areas to meet long-term objectives.	d. Bighorn sheep would be allowed to graze on allotments with domestic sheep at 1,594 AUMs more than the livestock recommendation.
e. Provide 87 AUMs for antelope where established herds exist.	e. Provide 960 AUMs for antelope on established rangeland.	e. Provide 695 AUMs for antelope on allotments with existing herds to allow for 500 to 1,000 percent increases.	e. Antelope numbers would be more than that proposed in the livestock recommendation.
f. Provide 2,323 AUMs of excess forage to deer.	f. Provide optimum deer use of 5,688 AUMs on allotments and 439 AUMs on unallotted areas.	f. Provide 5,200 AUMs for deer on allotments and 441 AUMs on unallotted areas to approach prior stable numbers on all allotments where forage is sufficient and there is no conflict with other big game numbers.	f. Deer would be allowed to increase 2,877 AUMs more than the livestock recommendation.
	g. Provide 3,657 AUMs for bison on allotments and 111 on Dry Lakes (unallotted area) to optimize the use of available forage in bison habitat.	g. Provide 2,000 AUMs for bison on allotments and 88 AUMs (current capacity) on Dry Lakes (unallotted area) to provide for 200 mature animals and replacement needs.	g. Forage would be provided for 200 mature bison and replacements (2,088 AUMs).
2. Change the period of use on Cedar Point, Crescent Creek, North Bench, Waterpocket, and Wild Horse Allotments to increase the usability of livestock forage.	2. Maintain existing livestock periods of use which are more compatible with big game needs.	2. Change periods of use as proposed in the livestock recommendation.	2. None.
3. Implement rangeland developments and land treatments where beneficial to livestock use, if compatible with big game.	3. Implement rangeland developments and land treatments where beneficial to big game.	3. Implement rangeland developments and land treatments from both recommendations at a compatible level for livestock and big game.	3. Rangeland improvements would be compatible with big game use.



# CHAP. 2 — DESCRIPTION OF ALTERNATIVES

TABLE 2-2  
CURRENT LIVESTOCK/BIG GAME FORAGE USE  
Alternative A: Proposed Action--No Change  
Current Average Levels of Use

ALLOTMENTS	Kind of Livestock	Livestock <sup>a</sup>			Bison				Mule Deer			Antelope	Bighorn Sheep	Burros
		Active Preference (AUMs)	Average Licensed Use (AUMs)	Forage Available to Livestock (AUMs)	Proposed Grazing Use (AUMs)	Crucial Winter (AUMs)	Crucial Summer (AUMs)	Crucial Yearlong (AUMs)	Proposed Grazing Use (AUMs)	Crucial Winter <sup>b</sup> (AUMs)	Crucial Summer <sup>b</sup> (AUMs)			
Blue Bench	Cattle	4,598	2,161	2,749	5 (8) <sup>c</sup>	0	5 (8)	0	34	1	0	0	0	0
Bullfrog <sup>d</sup>	Cattle	3,120	2,106 <sup>e</sup>	2,337	74 (97)	74 (97)	0	0	62	22	0	0	0	0
Burr Point	Sheep	322	120 <sup>e</sup>	233	15	0	15	0	32	0	1 (35)	18	0	0
Cathedral	Cattle	2,138	1,691	2,951	0	0	0	0	121	0	0	0	0	0
	Sheep	2,279	No Use	914										
	Cattle	2,998	1,638	2,366										
		B 2,503 P 495	B 1,360 P 278	B 1,871 P 495										
Cedar Point	Cattle	1,892	839	1,294	8 (15)	0	8 (15)	0	55	33	0	19	0	0
Crescent Ck.	Cattle	332	333	181	65	0	65	0	81	0	75	0	0	0
Hanksville	Cattle	4,538	2,848	6,511	18	0	18	0	44	0	0	19	0	0
	Sheep	1,462	No Use	985										
Hartnet	Cattle	2,938	1,710	2,884	0	0	0	0	103	0	0	0	0	0
		B 1,021 P 1,917	B 599 P 1,111	B 967 P 1,917										
Nasty Flat	Cattle	474	468	297	685	0	457	228	71 (73)	6 (8)	55	0	0	0
North Bench	Cattle	456	45	306	0	0	0	0	39	0	0	0	0	0
Pennell	Cattle	2,420	1,960	2,240	952 (958)	0	576	376	205	88	72	0	0	0
	Sheep	174	No Use	109		(6)								
Robbers Roost <sup>d</sup>	Cattle	5,288	2,882	6,902	0	0	0	0	392	0	0	31	22	100
Rockies <sup>d</sup>	Cattle	5,600	3,762	4,003	0	0	0	0	69	0	14	0	16	0
	Sheep	272	128 <sup>e</sup>	249					(75)		(20)			
Sandy 1	Cattle	1,209	1,096	949	0	0	0	0	33	0	0	0	0	0
		B 927 P 282	B 844 P 252	B 667 P 282										
	Sheep	51	No Use	0										
Sandy 2	Cattle	2,228	1,257	715	122 (155)	105 (138)	17	0	29	0	0	0	0	0
Sandy 3	Cattle	985	875	981	0	0	0	0	12	0	0	0	0	0
		B 305 P 680	B 271 P 604	B 301 P 680										
Sawmill Basin	Cattle	166	33	64	146	0	146	0	95	0	88	0	0	0
Sewing Machine <sup>d</sup>	Cattle	1,600	998	2,681	0	0	0	0	167	0	0	0	21	0
Steele Butte	Cattle	5,034	2,672	1,888	202 (288)	178 (249)	17	7 (22)	112	54	0	0	0	0
Trachyte	Cattle	2,110	1,542 <sup>e</sup>	1,109	20	0	20	0	59	27	15	0	16	0
Waterpocket <sup>d</sup>	Sheep	743	84 <sup>e</sup>	475										
	Cattle	3,025	1,813	3,107	0	0	0	0	31	0	0	0	0	0
		B 2,861 P 164	B 1,715 P 98	B 2,943 P 164										
	Sheep <sup>g</sup>	322	133 <sup>e</sup>	280										
		B 322 P 0	B 133 P 0	B 262 P 18										
Wild Horse	Cattle	1,067	104	1,491	0	0	0	0	128	0	0	0	0	0
Subtotal	Cattle	54,216	32,833	48,006	2,312 (2,470)	357 (490)	1,344 (1,354)	611 (626)	1,974 (1,985)	231 (233)	320 (329)	87	75	100
		B 50,678 P 3,538	B 30,490 P 2,343	B 44,468 P 3,538										
	Sheep	5,625	465	3,245										
		B 5,607 P 18	B 458 P 7	B 3,227 P 18										
<u>Unallotted Areas</u>														
Dry Lakes	None				100 (226)	0	73	27 (153)	59	0	54	0	0	0
Flint Trail <sup>d</sup>	None				0	0	0	0	166	0	0	0	0	0
Little Rockies <sup>d</sup>	None				0	0	0	0	16	0	0	0	0	0
North Caineville	No Livestock Use				0	0	0	0	8	0	0	0	0	0
Mesa														
South Caineville	No Livestock Use				0	0	0	0	12	0	0	0	0	0
Mesa														
Subtotal		0	0	0	100 (226)	0	73	27 (153)	261	0	54	0	0	0
TOTAL <sup>f</sup>		59,841	33,298	51,251	2,412 (2,696)	357 (490)	1,417 (1,427)	638 (779)	2,235 (2,246)	231 (233)	374 (383)	87	75	100

Source: Figures were derived from the soil-vegetation inventory conducted by USOI, BLM and Earth Environmental Consultants, Inc. (1980).

<sup>a</sup>Active preference and average licensed use AUMs are for BLM and Glen Canyon NRA (see footnote <sup>c</sup>) lands only, except for allotments containing National Park Lands. B = BLM, P = Park. Average licensed use numbers have been changed in this Final EIS because of errors in data used to complete the Draft EIS.

<sup>b</sup>Deer AUMs are comprised of crucial summer and crucial winter ranges in this Final EIS.

<sup>c</sup>Numbers in ( ) are actual AUMs needed from BLM-administered lands (as per UOWR and BLM agreement); however, there is not enough forage available to meet these needs.

<sup>d</sup>Includes both BLM and Glen Canyon NRA lands.

<sup>e</sup>Intermittent use.

<sup>f</sup>Includes 3,556 AUMs of active preference and 2,037 AUMs of average licensed use in Capitol Reef National Park.

<sup>g</sup>Sheep use has been excluded in Capitol Reef National Park since 1975 as stipulated in the Waterpocket Allotment Agreement and Management Plan.



# CHAP. 2 — DESCRIPTION OF ALTERNATIVES

TABLE 2-2 (continued)

Alternative B: No Action  
Maintain Existing Forage Allocation

ALLOTMENTS	Kind of Livestock	Livestock <sup>a</sup>		Bison				Mule Deer			Antelope (AUMs)	Bighorn Sheep (AUMs)	Burros (AUMs)
		Active Preference (AUMs)	Average Licensed Use (AUMs)	1974 Reservations (AUMs)	Crucial Winter (AUMs)	Crucial Summer (AUMs)	Crucial Yearlong (AUMs)	1974 Reservations (AUMs)	Crucial Winter <sup>b</sup> (AUMs)	Crucial Summer <sup>b</sup> (AUMs)			
Blue Bench	Cattle	4,598	2,161	16	0	16	0	76	4	0	0	0	0
Bullfrog <sup>c</sup>	Cattle	3,120	2,106	36	36	0	0	97	37	0	0	0	0
	Sheep	322	120 <sup>d</sup>										
Burr Point	Cattle	2,138	1,691	13	0	13	0	65	0	9	0	0	0
	Sheep	2,279	No Use										
Cathedral	Cattle	2,998	1,638	0	0	0	0	274	0	0	0	0	0
		B 2,503 P 495	B 1,360 P 278										
Cedar Point	Cattle	1,892	839	10	0	10	0	119	59	0	0	0	0
Crescent Creek	Cattle	332	333	55	0	55	0	185	0	214	0	0	0
Hanksville	Cattle	4,538	2,848	16	0	16	0	76	0	0	0	0	0
	Sheep	1,462	No Use										
Hartnet	Cattle	2,938	1,710	0	0	0	0	90	0	0	0	0	0
		B 1,021 P 1,917	B 599 P 1,111										
Nasty Flat	Cattle	474	468	612	0	404	208	176	18	214	0	0	0
North Bench	Cattle	456	45	0	0	0	0	90	0	0	0	0	0
Pennell	Cattle	2,420	1,960	926	10	569	347	468	186	198	0	0	0
	Sheep	174	No Use										
Robbers Roost <sup>c</sup>	Cattle	5,288	2,882	0	0	0	0	808	0	0	0	0	100
Rockies <sup>c</sup>	Cattle	5,600	3,762 <sup>d</sup>	0	0	0	0	163	0	46	0	0	0
	Sheep	272	128										
Sandy 1	Cattle	1,209	1,096	0	0	0	0	65	0	0	0	0	0
		B 927 P 282	B 844 P 252										
	Sheep	8 51	No Use										
Sandy 2	Cattle	8 2,228	1,257	130	120	10	0	67	0	0	0	0	0
Sandy 3	Cattle	985	875	0	0	0	0	28	0	0	0	0	0
		B 305 P 680	B 271 P 604										
Sawmill Basin	Cattle	166	33	131	0	131	0	217	0	216	0	0	0
Sewing Machine <sup>c</sup>	Cattle	1,600	998	0	0	0	0	379	0	0	0	0	0
Steele Butte	Cattle	5,034	2,672	254	220	15	19	256	125	0	0	0	0
Trachyte	Cattle	2,110	1,542 <sup>d</sup>	11	0	11	0	163	67	57	0	0	0
	Sheep	743	84 <sup>d</sup>										
Waterpocket <sup>c</sup>	Cattle	3,025	1,813	0	0	0	0	72	0	0	0	0	0
		B 2,861 P 164	B 1,715 P 98										
	Sheep <sup>f</sup>	322	133 <sup>d</sup>										
		B 322 P 0	B 126 P 7										
Wild Horse	Cattle	1,067	104	0	0	0	0	292	0	0	0	0	0
Subtotal <sup>e</sup>		59,841	33,298	2,210	386	1,250	574	4,226	496	954	0	0	100
<u>Unallotted Areas</u>													
Dry Lakes	None			190	0	65	125	113	0	130	0	0	0
Flint Trail <sup>c</sup>	None			0	0	0	0	377	0	0	0	0	0
Little Rockies <sup>c</sup>	None			0	0	0	0	37	0	0	0	0	0
North Caineville Mesa	No Livestock Use			0	0	0	0	19	0	0	0	0	0
South Caineville Mesa	No Livestock Use <sup>g</sup>			0	0	0	0	28	0	0	0	0	0
Subtotal <sup>e</sup>		0	0	190	0	65	125	574	0	130	0	0	0
TOTAL <sup>e</sup>		59,841	33,298	2,400	386	1,315	699	4,800	496	1,084	0	0	100

<sup>a</sup>Active preference and average licensed use AUMs are all for BLM lands except for allotments containing both BLM and National Park lands: B = BLM, P = Park. Average licensed use numbers have been changed in this Final EIS because of errors in data used to complete the Draft EIS.

<sup>b</sup>Deer AUMs are part of the 1974 mule deer reservations.

<sup>c</sup>Includes both BLM and Glen Canyon NRA lands.

<sup>d</sup>Intermittent use.

<sup>e</sup>Includes 3,556 AUMs active preference and 2,350 average licensed use in Capitol Reef National Park.

<sup>f</sup>Sheep use has been excluded in Capitol Reef National Park since 1975 as stipulated in the Waterpocket Allotment Agreement and Management Plan.

<sup>g</sup>Part of Blue Bench Allotment not grazed.



# CHAP. 2 — DESCRIPTION OF ALTERNATIVES

TABLE 2-2 (continued)

Alternative C: Manage For Optimum Big Game Production

ALLOTMENTS	Kind of Livestock	Livestock			Alternative Grazing Use (AUMs)	Bison			Mule Deer			Antelope Alternative Grazing Use (AUMs)	Bighorn Sheep		Burros Alternative Grazing Use (AUMs)
		Alternative Grazing Use (AUMs)	Period of Use			Crucial Winter (AUMs)	Crucial Summer (AUMs)	Crucial Yearlong (AUMs)	Alternative Grazing Use (AUMs)	Crucial Winter (AUMs) <sup>a</sup>	Crucial Summer (AUMs) <sup>a</sup>		Alternative Grazing Use (AUMs)	Alternative Grazing Use (AUMs)	
			Current	Proposed											
Blue Bench	Cattle	2,737	9/1-5/31	No change	5 (14) <sup>b</sup>	0	5 (14)	0	179	5	0	0	0	0	0
Bullfrog <sup>c</sup>	Cattle	2,123	10/1-5/31	No change	74	74	0	0	375	143	0	0	0	0	0
	Sheep	1,229	10/1-5/31	No change	(85)	(85)									
Burr Point	Cattle	1,725	9/1-5/31	No change	28	0	28	0	179	0	0	277	0	0	0
	Sheep	408	10/1-5/5	No change					(204)		(25)				
Cathedral <sup>d</sup>	Cattle	2,366	10/1-5/31	No change	0	0	0	0	222	0	0	0	0	0	0
	B	1,871													
	P	495													
Cedar Point	Cattle	1,029	9/1-5/31	No change	5 (27)	0	5 (27)	0	180 (331)	54 (205)	0	180	0	0	0
Crescent Ck.	No livestock grazing			(None)	159	0	159	0	288 (478)	0	253 (443)	0	0	0	0
Hanksville	Cattle	4,538	9/1-5/31	No change	35	0	35	0	240	0	0	129	0	0	0
	Sheep	1,462	10/1-5/31	No change											
Hartnet <sup>d</sup>	Cattle	2,884	11/1-6/15	No change	0	0	0	0	128	0	0	0	0	0	0
	B	967													
	P	1,917													
Nasty Flat	No livestock grazing			(None)	870 (1,455)	0	652 (977)	218 (478)	248 (530)	6 (50)	165 (403)	0	0	0	0
North Bench	Cattle	306	9/1-3/31	No change	0	0	0	0	52	0	0	0	0	0	0
Pennell	No livestock grazing			(None)	1,971 (1,995)	0	1,194 (24)	777	1,050 (1,300)	303 (553)	458	0	0	0	0
Robbers <sup>c</sup>	Cattle	6,439	3/1-2/28 <sup>e</sup>	No change	0	0	0	0	392	0	0	374	819	100	
Roost <sup>c</sup>															
Rockies <sup>c</sup>	Cattle	2,858 <sup>e</sup>	10/1-5/31	No change	0	0	0	0	392	0	6 (53)	0	832	0	
	Sheep	0 <sup>e</sup>		(None)					(439)						
Sandy 1 <sup>d</sup>	Cattle	938	10/1-4/15	No change	0	0	0	0	92	0	0	0	0	0	0
	B	656													
	P	282													
	Sheep	210 <sup>f</sup>	10/1-4/15	No change											
Sandy 2	Cattle	701 <sup>f</sup>	10/16-4/15	No change <sup>f</sup>	138 (309)	105 (276)	33	0	62	0	0	0	0	0	0
Sandy 3 <sup>d</sup>	Cattle	981	10/16-4/15	No change	0	0	0	0	21	0	0	0	0	0	0
	B	301													
	P	680													
Sawmill Basin	No livestock grazing			(None)	133 (309)	0	133 (309)	0	256 (586)	0	212 (542)	0	0	0	0
Sewing Machine <sup>c</sup>	Cattle	2,646	11/1-4/15	No change	0	0	0	0	167	0	0	0	897	0	
Steele Butte	Cattle	1,862 <sup>g</sup>	10/16-5/31	No change	219 (590)	178 (512)	34	7 (44)	488 (709)	189 (410)	0	0	0	0	0
Trachyte	Cattle	978	9/1-5/31	No change	20	0	20	0	343	165	28 (96)	0	64	0	
	Sheep	0 <sup>e</sup>		(None)											
Waterpocket <sup>c,d</sup>	Cattle	3,082	10/1-5/31	No change	0	0	0	0	206	0	0	0	0	0	0
	B	2,918													
	P	164													
	Sheep	711	10/1-5/31	No change											
	B	693													
	P	18 <sup>h</sup>													
Wild Horse	Cattle	1,067	12/1-6/30	No change	0	0	0	0	128	0	0	0	0	0	0
Subtotal <sup>i</sup>	Cattle	B 35,722 P 3,538			3,657	357	2,298	1,002	5,688	865	1,122	960	2,612	100	
	Sheep	B 4,082 P 18			(5,026)	(897)	(2,830)	(1,299)	(7,184)	(1,531)	(2,020)				
Unallotted Areas															
Dry Lakes	No livestock grazing				111 (432)	0	100 (132)	11 (300)	141 (337)	0	123 (319)	0	0	0	0
Flint Trail <sup>c</sup>	No livestock grazing				0	0	0	0	166	0	0	0	808	0	
Little Rockies <sup>c</sup>	No livestock grazing				0	0	0	0	112	0	0	0	548	0	
North Caine-ville Mesa	No Livestock grazing (except for research)				0	0	0	0	8	0	0	0	0	0	0
South Caine-ville Mesa	No Livestock grazing (except for research)				0	0	0	0	12	0	0	0	0	0	0
Subtotal					111 (432)	0	100 (132)	11 (300)	439 (635)	0	123 (319)	0	1,356	0	
TOTAL		43,360			3,768 (5,458)	357 (897)	2,398 (2,962)	1,013 (1,599)	6,127 (7,819)	865 (1,531)	1,245 (2,339)	960	3,968	100	

<sup>a</sup>Total deer AUMs are comprised of crucial summer and crucial winter ranges only.

<sup>b</sup>Numbers in ( ) are actual AUMs needed from BLM-administered lands to meet UOWR's long-range goals; however, forage is not available to meet these needs.

<sup>c</sup>Includes both BLM and Glen Canyon NRA lands.

<sup>d</sup>These allotments have both BLM and National Park Lands. B = BLM AUMs, P = National Park AUMs.

<sup>e</sup>Domestic and bighorn sheep compatibility conflicts on these allotments.

<sup>f</sup>No livestock grazing proposed on Swapp Mesa.

<sup>g</sup>No livestock grazing proposed on Cave Flat.

<sup>h</sup>These AUMs would not be allocated because sheep use has been excluded from Capitol Reef National Park since 1975, as stipulated in the Waterpocket Allotment Agreement and Management Plan.

<sup>i</sup>BLM and Glen Canyon NRA lands only, does not include National Park lands.



# CHAP. 2 — DESCRIPTION OF ALTERNATIVES

TABLE 2-2 (continued)

Alternative 0: Manage for Optimum Livestock Production

ALLOTMENTS	Kind of Livestock	Livestock			Bison Alternative Grazing Use (AUMs)	Mule Deer Alternative Grazing Use (AUMs)	Crucial Winter <sup>a</sup> (AUMs)	Crucial Summer <sup>a</sup> (AUMs)	Antelope Alternative Grazing Use (AUMs)	Bighorn Sheep Alternative Grazing Use (AUMs)	Burros Alternative Grazing Use (AUMs)
		Alternative Grazing Use (AUMs)	Period Current	of Use Proposed							
Blue Bench <sup>b</sup>	Cattle	2,756	9/1-5/31	No change.	0	34	1	0	0	0	0
	Cattle	2,192	10/1-5/31	No change	0	62	22	0	0	0	0
	Sheep	1,302	10/1-5/31	No change							
Burr Point	Cattle	2,957	9/1-5/31	No change	0	29	0	1	18	0	0
	Sheep	919	10/-5/5	No change		(35)		(4)			
Cathedral <sup>c</sup>	Cattle	2,366	10/1-5/31	No change	0	121	0	0	0	0	0
		8 P 1,871 495									
Cedar Point	Cattle	1,334	9/1-5/31	9/1-4/30	0	55	33	0	19	0	0
Crescent Creek	Cattle	205	6/1-9/15	5/1-9/15	0	81	0	75	0	0	0
Hanksville	Cattle	6,348	9/1-5/31	No change	0	44	0	0	19	0	0
Hartnet <sup>c</sup>	Sheep	4,331	10/1-5/5	No change							
	Cattle	2,884	11/1-6/15	No change	0	103	0	0	0	0	0
		8 P 967 1,917									
	Nasty Flat	Cattle	958	6/1-9/30	No change	0	71 (73)	6 (8)	55	0	0
North Bench	Cattle	306	9/1-3/31	9/1-6/30	0	39	0	0	0	0	0
Pennell	Cattle	2,471	6/1-10/31	No change	0	204	88	72	0	0	0
	Sheep	1,228	6/1-10/31	No change							
Robbers <sup>b</sup> Roost <sup>b</sup>	Cattle	6,902	3/1-2/28	No change	0	392	0	0	31	22	100
	Rockies <sup>d</sup>	Cattle	3,725	10/1-5/31	No change	0	69	0	6	0	16 <sup>d</sup>
Sandy 1 <sup>c</sup>	Sheep	2,655	10/1-5/31	No change		(75)		(8)			
	Cattle	938	10/1-4/15	No change	0	33	0	0	0	0	0
		B 656 P 282									
		210	10/1-4/15	No change							
Sandy 2	Cattle	885	10/16-4/15	No change	0	29	0	0	0	0	0
Sandy 3 <sup>c</sup>	Cattle	981	10/16-4/15	No change	0	12	0	0	0	0	0
		8 P 301 680									
Sawmill Basin <sup>b</sup>	Cattle	153	7/16-8/31	No change	0	95	0	88	0	0	0
Sewing Machine <sup>b</sup>	Cattle	2,681	11/1-4/15	No change	0	167	0	0	0	925 <sup>d</sup>	0
Steele Butte	Cattle	2,022	10/16-5/31	No change	0	110	54	0	0	0	0
Trachyte	Cattle	1,066	9/1-5/31	No change	0	59	27	15	0	17 <sup>d</sup>	0
Waterpocket <sup>b,c</sup>	Sheep	1,453	10/1-5/5	No change							
	Cattle	3,090	10/1-5/31	10/1-4/15	0	31	0	0	0	0	0
		8 P 2,926 164									
	Sheep	771	10/1-5/31	10/1-4/15							
		8 P 753 18 <sup>e</sup>									
	Wild Horse	Cattle	1,495	12/1-6/30	9/1-6/30	0	128	0	0	0	0
Subtotal		B 45,177 C P 3,538 C B 12,851 S P 18 S			0	1,968 (1,982)	231 (233)	312 (317)	87	980	100
Unallotted Areas											
Dry Lakes <sup>b</sup>	Cattle	83	None	7/15-8/30	0	57	0	54	0	0	0
Flint Trail <sup>b</sup>	Cattle	1,332	None	10/1-4/15	0	166	0	0	0	808	0
Little Rockies <sup>b</sup>	Cattle	85	None	9/15-3/30	0	112	0	0	0	548	0
North Caineville	No Livestock grazing		None	None	0	8	0	0	0	0	0
Mesa											
South Caineville	No Livestock grazing		None	None	0	12	0	0	0	0	0
Mesa											
Subtotal		1,500			0	355	0	54	0	1,356	0
TOTAL		8 46,677 C P 3,538 C B 12,841 S P 18 S 63,084 <sup>f</sup>			0	2,323 (2,337)	231 (233)	366 (371)	87	2,336	100

<sup>a</sup>Total deer AUMs are comprised of crucial summer and crucial winter ranges only.

<sup>b</sup>Includes both BLM and NRA lands.

<sup>c</sup>These allotments have both BLM and National Park Lands. 8 = BLM AUMs and P = National Park AUMs.

<sup>d</sup>Domestic and bighorn sheep compatibility conflict in these allotments.

<sup>e</sup>These AUMs would not be allocated because sheep use has been excluded from Capitol Reef National Park since 1975, as stipulated in the Waterpocket Allotment Agreement and Management Plan.

<sup>f</sup>Total BLM and National Park AUMs.



TABLE 2-2 (continued)

Alternative E: Preferred Alternative--MFP Step 2 Planning Recommendation

ALLOTMENTS	Kind of Livestock	Livestock <sup>a</sup>					Bison					Mule Deer					Antelope					Bighorn Sheep			Burros	
		Active Preference (AUMs)	Average License Use (AUMs)	Alternative Grazing Use (AUMs)	Period of Use		Long Term Objective (AUMs)	Current Grazing Use (AUMs)	Alternative Grazing Use (AUMs)	Crucial Winter (AUMs)	Crucial Summer (AUMs)	Crucial Yearlong (AUMs)	Prior Stable (AUMs)	Current Grazing Use (AUMs)	Alternative Grazing Use (AUMs)	Crucial Winter <sup>b</sup> (AUMs)	Crucial Summer <sup>b</sup> (AUMs)	Long Term Objective (AUMs)	Current Grazing Use (AUMs)	Alternative Grazing Use (AUMs)	Long Term Objective (AUMs)	Current Grazing Use (AUMs)	Alternative Grazing Use (AUMs)	Current Grazing Use (AUMs)	Alternative Grazing Use (AUMs)	
					Current	Proposed																				
Blue Bench	Cattle	4,598	2,161	2,753	9/1-5/31	No change	5 (14) <sup>c</sup>	5 (8)	4 (8)	0	4 (8)	0	179	34	179	5	0	0	0	0	0	0	0	0	0	
Bullfrog <sup>d</sup>	Cattle	3,120	2,106	2,356 <sup>e</sup>	10/1-5/31	No change	74	74	45	45	0	0	375	62	375	143	0	0	0	0	0	0	0	0	0	
	Sheep	322	120 <sup>f</sup>	679	10/1-5/31	No change	(85)	(97)																		
Burr Point	Cattle	2,138	1,691	1,091 <sup>g</sup>	9/1-5/31	No change	28	15	15	0	15	0	179	32	175	0	1	277	18	18	0	0	0	0	0	
	Sheep	2,279	No Use	1,174 <sup>g</sup>	10/1-5/5	No change							(204)	(35)	(178)		(4)									
Cathedral	Cattle	2,998	1,638	2,366	10/1-5/31	No change	0	0	0	0	0	0	222	121	222	0	0	0	0	0	0	0	0	0	0	
	Sheep	2,503	1,360	1,871																						
Cedar Point	Cattle	495	278	495																						
	Sheep	1,892	839	1,273	9/1-5/31	9/1-4/30	5 (27)	8 (15)	6 (9)	0	6 (9)	0	180 (331)	55	161	34	0	174	19	174	0	0	0	0	0	
Crescent Creek	Cattle	332	333	187	6/1-9/15	5/1-9/15	159	65	55	0	55	0	288 (478)	81	282	0	247	0	0	0	0	0	0	0	0	
Hanksville	Cattle	4,538	2,848	6,159 <sup>h</sup>	9/1-5/31	No change	35	18	18	0	18	0	240	44	240	0	0	129	19	129	0	0	0	0	0	
	Sheep	1,462	No Use	4,056	10/1-5/31	No change																				
Nartnet	Cattle	2,938	1,710	2,884	11/1-5/31	No change	0	0	0	0	0	0	128	103	128	0	0	0	0	0	0	0	0	0	0	
	Sheep	1,021	599	967																						
Nasty Flat	Cattle	1,917	1,111	1,917																						
	Sheep	474	468	399	6/1-9/30	No change	870 (1,455)	685	576	0	348	228	248 (530)	71 (73)	210 (213)	5 (8)	131	0	0	0	0	0	0	0	0	
North Bench	Cattle	456	45	306	9/1-11/30	9/1-6/30	0	0	0	0	0	0	52	39	51	0	0	0	0	0	0	0	0	0	0	
	Sheep	2,420	1,960	2,330 <sup>e</sup>	6/1-10/31	No change	1,971	952	829	0	456	373	1,050	205	824	167	363	0	0	0	0	0	0	0	0	
Robbers Roost <sup>d</sup>	Cattle	174	No Use	231	6/1-10/31	No change	(1,995)	(958)	(835)	(6)	0	0	(1,300)	392	392	0	0	374	31	374	819	22	819	100	100	
	Sheep	5,288	2,882	6,439 <sup>h</sup>	3/1-2/28	No change	0	0	0	0	0	0	392	69	289	0	5	0	0	0	832	16	794	0	0	
Rockies <sup>d</sup>	Cattle	5,600	3,762 <sup>f</sup>	3,988 <sup>e</sup>	10/1-5/31	No change	0	0	0	0	0	0	392	69	289	0	5	0	0	0	0	0	0	0	0	
	Sheep	272	128	875	10/1-5/31	No change							(439)	(75)	(292)		(8)									
Sandy 1	Cattle	1,209	1,096	938	10/1-4/15	No change	0	0	0	0	0	0	92	33	92	0	0	0	0	0	0	0	0	0	0	
	Sheep	927	844	656 <sup>e</sup>																						
Sandy 2	Cattle	282	252	282																						
	Sheep	51	No Use	210	10/16-4/15	No change																				
Sandy 3	Cattle	2,228	1,257	707	10/16-4/15	No change	138 (309)	122 (155)	122 (155)	105 (138)	17	0	62	29	62	0	0	0	0	0	0	0	0	0	0	
	Sheep	985	875	981	10/16-4/15	No change	0	0	0	0	0	0	21	12	21	0	0	0	0	0	0	0	0	0	0	
Sawmill Basin	Cattle	305	271	301																						
	Sheep	680	604	680																						
Sewmill Basin	Cattle	166	33	96	7/16-8/31	No change	133 (309)	146	114	0	114	0	256 (586)	95	181	0	138	0	0	0	0	0	0	0	0	
	Sheep	1,600	998	2,646	11/1-4/15	No change	0	0	0	0	0	0	167	167	167	0	0	0	0	897	21	897	0	0		
Sewing Machine <sup>d</sup>	Cattle	5,034	2,672	1,874	10/16-5/31	No change	219 (590)	202 (288)	202 (296)	178 (257)	17	7 (22)	488 (709)	112	488	188	0	0	0	0	0	0	0	0	0	
	Sheep	2,110	1,542 <sup>f</sup>	1,164 <sup>e</sup>	9/1-5/31	No change	20	20	14	0	14	0	343	59	327	148	25	0	0	0	64	16	64	0	0	
Waterpocket <sup>d</sup>	Cattle	743	84	800	10/1-5/5	No change																				
	Sheep	3,025	1,813	3,116 <sup>e</sup>	10/1-5/31	10/1-4/15	0	0	0	0	0	0	206	31	206	0	0	0	0	0	0	0	0	0	0	
Wild Horse	Cattle	2,861	1,715	2,952 <sup>e</sup>	10/1-5/31	10/1-4/15																				
	Sheep <sup>i</sup>	164	98 <sup>f</sup>	164	10/1-5/31	10/1-4/15																				
Subtotal <sup>i</sup>	Cattle	322	133	474																						
	Sheep	322	108	456																						
TOTAL <sup>i</sup>	Cattle	0	0	18																						
	Sheep	1,067	104	1,491	12/1-6/30	9/1-6/30	0	0	0	0	0	0	128	128	128	0	0	0	0	0	0	0	0	0	0	
Unallotted Areas	Cattle	59,841	33,298	54,043			3,657 (5,026)	2,312 (2,470)	2,000 (2,140)	328 (446)	1,064 (1,071)	608 (623)	5,688 (7,184)	1,974 (1,985)	5,200 (5,209)	690 (693)	910 (916)	954	87	695	2,612	75	2,574	100	100	
	Sheep	54,216	32,833	45,544																						
Subtotal	Cattle	50,678	30,490	42,006																						
	Sheep	3,538	2,343	3,538																						
TOTAL <sup>i</sup>	Cattle	5,625	469	8,499																						
	Sheep	5,607	458	8,481																						
Unallotted Areas	Cattle	18	7	18																						
	Sheep																									
Dry Lakes	Cattle	0	0	No livestock grazing			111 (432)	100 (226)	88 (190)	0	52	36 (138)	141 (337)	59	143	0	125	0	0	0	0	0	0	0	0	
	Sheep	0	0	No livestock grazing			0	0	0	0	0	0	166	166	166	0	0	0	0	808	0	808	0	0		
Flint Trail <sup>k</sup>	Cattle	0	0	No livestock grazing			0	0	0	0	0	0	112	16	112	0	0	0	0	548	0	548	0	0		
	Sheep	0	No use	No livestock grazing			0	0	0	0	0	0	8	8	8	0	0	0	0	0	0	0	0	0	0	
Little Rockies <sup>d</sup>	Cattle	0	No use	No livestock grazing			0	0	0	0	0	0	12	12	12	0	0	0	0	0	0	0	0	0	0	
	Sheep	0	No use	No livestock grazing			0	0	0	0	0	0	12	12	12	0	0	0	0	0	0	0	0	0	0	
North Caineville	Cattle	0	No use	No livestock grazing			0	0	0	0	0	0	12	12	12	0	0	0	0	0	0	0	0	0	0	
	Sheep	0	No use	No livestock grazing			0	0	0	0	0	0	12	12	12	0	0	0	0	0	0	0	0	0	0	
South Caineville	Cattle	0	No use	No livestock grazing			0	0	0	0	0	0	12	12	12	0	0	0	0	0	0	0	0	0	0	
	Sheep	0	No use	No livestock grazing			0	0	0	0	0	0	12	12	12	0	0	0	0	0	0	0	0	0	0	
Mesa	Cattle	0	No use	No livestock grazing			0	0	0	0	0	0	12	12												

<sup>a</sup>AUM active preference, average licensed use, and proposed grazing use are for BLM-administered lands (including Glen Canyon NRA lands; see footnote b) only except on those allotments containing both BLM and NPS lands: B = BLM, P = Park. Average licensed use numbers have been changed in this final EIS because of errors in data used to complete the Draft EIS.

<sup>b</sup>Total deer AUMs are comprised of







# CHAP. 2 — DESCRIPTION OF ALTERNATIVES

TABLE 2-3  
Comparison of Forage Use by Alternative<sup>a</sup>

Allotments	Alternative A		Alternative B		Alternative C		Alternative D		Alternative E		Classification Categories <sup>j</sup>
	Livestock	Big Game	Livestock	Big Game	Livestock	Big Game	Livestock	Big Game	Livestock	Big Game	
Blue Bench	2,161	42	4,598	92	2,737	184	2,756	34	2,753	183	I
Bullfrog	2,226	159	3,442	133	3,352	449	3,494	62	3,035	420	M
Burr Point	1,691 <sup>b</sup>	68	4,417 <sup>b</sup>	78	2,213 <sup>c</sup>	484	3,876 <sup>c</sup>	47	2,265 <sup>c</sup>	208	M
Cathedral	1,360 <sup>b</sup>	121	2,503 <sup>b</sup>	274	1,871 <sup>c</sup>	222	1,871 <sup>c</sup>	121	1,871 <sup>c</sup>	222	C
Cedar Point	839	89	1,892	129	1,029	365	1,334	74	1,273	341	I
Crescent Creek	333	146	332	240	0	447	205	81	187	337	I
Hanksville	2,848 <sup>d</sup>	81	6,000 <sup>d</sup>	92	6,000 <sup>d</sup>	404	10,679 <sup>c</sup>	63	10,215 <sup>c</sup>	387	M
Hartnet	599 <sup>d</sup>	103	1,021 <sup>d</sup>	90	967 <sup>c</sup>	128	967 <sup>c</sup>	103	967 <sup>c</sup>	128	C
Nasty Flat	468	758	474	788	0	1,118	958	71	399	786	I
North Bench	45	39	456	90	306	52	306	39	306	51	M
Pennell	1,960	1,163	2,594	1,394	0	3,021	3,699	204	2,561	1,653	I
Robbers Roost	2,882	545	5,288	908	6,439	1,685	6,902	545	6,439	1,685	M
Rockies	3,890	91	5,872 <sup>e</sup>	163	2,858 <sup>c</sup>	1,224	6,380 <sup>c</sup>	85	4,863 <sup>c</sup>	1,093	I
Sandy 1	844 <sup>e</sup>	33	976 <sup>e</sup>	65	866 <sup>c</sup>	92	866 <sup>c</sup>	33	866 <sup>c</sup>	92	I
Sandy 2	1,257 <sup>f</sup>	184	2,228 <sup>f</sup>	197	701	200	885	29	707	184	I
Sandy 3	271 <sup>f</sup>	12	305 <sup>f</sup>	28	301	21	301 <sup>c</sup>	12	301 <sup>c</sup>	21	C
Sawmill Basin	33	241	166	348	0	389	153	95	96	295	I
Sewing Machine	998	188	1,600	379	2,646 <sup>c</sup>	1,064	2,681	1,092	2,646	1,064	M
Steele Butte	2,672	400	5,034	510	1,862	707	2,022	110	1,874	690	I
Trachyte	1,626	95	2,853 <sup>g</sup>	174	978	427	2,519	76	1,964	405	I
Waterpocket	1,841 <sup>g</sup>	31	3,165 <sup>g</sup>	72	3,611 <sup>c</sup>	206	3,679 <sup>c</sup>	31	3,408 <sup>c</sup>	206	C
Wild Horse	104	128	1,067	292	1,067	128	1,495	128	1,491	128	M
Subtotal	30,948	4,717	56,285	6,536	39,804	13,017	58,028	3,135	50,487	10,569	
<u>Unallotted Areas</u>											
Ory Lakes	0	285	0	303	0	252	83	57	0	231	M
Flint Trail	0	166	0	377	0	974	1,332	974	0	974	M
Little Rockies	0	16	0	37	0	660	85	660	0	660	M
North Caineville	0	8	0	19	0	8	0	8	0	8	M
Mesa											
South Caineville	0	12	0	28	0	12	0	12	0	12	M
Mesa											
Subtotal <sup>h</sup>	0	487	0	764 <sup>i</sup>	0	1,906	1,500	1,711	0	1,885	
GRAND TOTAL <sup>h</sup>	30,948	5,204	56,285	7,300 <sup>i</sup>	39,804	14,923	59,528	4,846	50,487	12,454	

Source: Figures were derived from the soil-vegetation inventory, conducted by USOI, BLM and Earth Environmental Consultants, Inc. (1980).

<sup>a</sup>Includes only BLM-administered lands.

<sup>b</sup>Cathedral AUMs are about 83 percent on BLM and 17 percent on NPS lands. This table shows only BLM AUMs.

<sup>c</sup>BLM and Glen Canyon NRA AUMs only, based on monitoring and trend studies supported by the soil-vegetation inventory. NPS AUMs would have to be added to these should grazing be continued. Proposals in all alternatives assume grazing would be eliminated on NPS lands.

<sup>d</sup>Hartnet AUMs are about 35 percent on BLM and 65 percent on NPS lands. This shows only BLM AUMs.

<sup>e</sup>Sandy 1 AUMs are about 77 percent on BLM and 23 percent on NPS lands. This shows only BLM AUMs.

<sup>f</sup>Sandy 3 AUMs are about 31 percent on BLM and 69 percent on NPS lands. This shows only BLM AUMs.

<sup>g</sup>Waterpocket AUMs are about 95 percent on BLM and Glen Canyon NRA and 5 percent on NPS lands. This shows only BLM and Glen Canyon NRA AUMs.

<sup>h</sup>Totals do not include 3,556 AUMs active preference and 2,037 AUMs average licensed use for livestock in Capitol Reef National Park.

<sup>i</sup>Total reservations for big game were 7,200 AUMs; however, BLM proposes to provide 100 AUMs for existing population of burros on Robbers Roost Allotment.

<sup>j</sup>Allotment classification: M - Maintain, I - Improve, C - Custodial. See also Chapter 1, Table 1-2. Unallotted areas would be in the Maintain category.



# CHAP. 2 — DESCRIPTION OF ALTERNATIVES

TABLE 2-4  
Proposed Rangeland Improvements for Alternatives C, O, and E

Allotments	Grazing Systems <sup>a</sup>	Land Treatments <sup>b</sup>			Rangeland Developments										Estimated Cost of		
		Acres	Additional AUMs Alternatives			Springs		Reservoirs		Pipelines (miles)	Troughs Locations	Vertical Wells	Horizontal Wells	Corral	Fences (miles)	Cattle Guards	Range Land Treatments and Developments (Dollars)
			C	O	E	Redev.	New	Recon.	New								
Blue Bench	Continue/revise	0	0	0	0	--	--	4	2	--	--	--	--	--	--	--	21,600
Bullfrog <sup>c</sup>	Continue/revise	2,000	250	250	250	--	2	4	1	12	4	--	--	--	--	--	99,560
Burr Point	Continue/revise	0	0	0	0	--	1	2	3	10	4	2	--	--	--	--	51,760
Cathedral	Implement	0	0	0	0	--	--	4	2	--	--	--	--	--	--	--	21,600
Cedar Point	Continue season-long	0	0	0	0	--	2	2	5	--	4	--	2	--	--	--	36,360
Crescent Creek	Continue/revise	1,100	150	150	150	1	--	--	--	1	1	--	--	--	3	--	82,140
		1,100	160 <sup>g</sup>	160 <sup>e</sup>	160 <sup>e,g</sup>												
Hanksville	Implement	0	0	0	0	--	1	3	5	1	4	2	--	--	10	--	77,760
Hartnet	Continue/revise	0	0	0	0	--	--	4	--	--	--	--	--	--	--	--	13,600
Nasty Flat	Implement	1,200	225	225	225	--	--	--	--	1	1	--	--	--	--	--	39,640
North Bench	Continue	0	0	0	0	--	--	3	--	--	--	--	--	--	--	--	10,200
Pennell	Continue	4,700	675	675	675	--	3	--	1	1	4	--	--	--	1	--	207,360
		1,400	200 <sup>g</sup>	200 <sup>e</sup>	200 <sup>e,g</sup>												
Robbers Roost <sup>c</sup>	Implement	0	0	0	0	--	--	2	7	--	--	--	--	--	--	--	34,800
Rockies <sup>c</sup>	Continue	4,400	300	300	300	1	2	8	2	6	10	2	--	--	1 <sup>h</sup>	--	203,200
Sandy 1	Continue season-long	0	0	0	0	--	--	3	4	--	--	--	--	--	--	1	33,200
Sandy 2	Continue	1,250	150	150	150	--	1	2 <sup>h</sup>	3	--	1	--	--	--	--	--	61,040
Sandy 3	Continue season-long	0	0	0	0	--	--	3 <sup>h</sup>	--	--	--	--	--	--	1	--	11,300
Sawmill Basin	Implement	750	110	110	110	--	1	--	1	--	1	--	--	--	--	--	45,240
		500	40 <sup>g</sup>	40 <sup>e</sup>	40 <sup>e,g</sup>												
Sewing Machine <sup>c</sup>	Implement	0	0	0	0	--	1	10	3	--	--	--	--	--	--	--	55,300
Steele Butte	Implement	4,000	480	480	480	--	1	1	7	--	1	--	--	--	--	--	160,040
Trachyte	Continue season-long	600	75	75	75	--	--	2	5 <sup>h</sup>	5	2	--	--	--	--	--	53,800
Waterpocket <sup>c</sup>	Continue/revise	0	0	0	0	1	--	3	6 <sup>h</sup>	--	1	--	--	--	--	--	--
Wild Horse	Continue	0	0	0	0	--	--	--	--	--	--	--	--	--	--	--	--
	Interseeding	3,000	400	400 <sup>e</sup>	400 <sup>e,g</sup>												
	Other Land Treatments	20,000	2,415	2,415	2,415												
Unallotted Areas																	
Ory Lakes	Implement	1,300	160 <sup>g</sup>	160	160 <sup>g</sup>	--	--	--	--	--	--	--	--	--	--	--	41,600
Elint Trail <sup>f</sup>	f	0	0	0	0	--	--	--	2	--	--	--	--	--	--	--	14,800
Little Rockies		0	0	0	0	--	--	--	--	--	--	--	--	--	--	--	--
North Caine-ville Mesa	No grazing	0	0	0	0	--	--	--	--	--	--	--	--	--	--	--	--
South Caine-ville Mesa	No grazing	0	0	0	0	--	--	--	--	--	--	--	--	--	--	--	--
Total Big Game		4,300	2,552	0	560 <sup>g</sup>												--
Total Livestock		20,000	423	2,975	2,415												--
GRAND TOTAL		24,300	2,975	2,975	2,975	3	15	60	59	37	38	6	2	1	17	2	1,375,900
Allotments and Unallotted Areas		10	10	10	10	3	10	17	17	8	13	3	1	1	5	2	22

<sup>a</sup>Proposals include: Continue or Continue with minor revisions to the present grazing system; Implement a new grazing system; Implement or Continue Season-Long grazing; and No Grazing of livestock. Potential additional AUMs for livestock from grazing management only (long term 20+ years). A - indicates inability to determine AUM potential from data given.

<sup>b</sup>Proposed land treatments include chain and seed, plow and seed, contour and seed, burn and seed, spray, burn only, seed only, and interseed with forbs. Potential may be realized within short term (5 years).

<sup>c</sup>No land treatments are proposed for the Glen Canyon NRA.

<sup>d</sup>Under this alternative, all AUMs on Crescent Creek (310), Nasty Flat (225), Pennell (875), Sawmill Basin (150), Ory Lakes (160), plus 2/3 of the AUMs developed on the remaining allotments and interseeding (totaling 2,552) would be allotted to big game. The remaining 423 would be allotted to livestock.

<sup>e</sup>Interseeding only with forbs and/or browse, as needed.

<sup>f</sup>See Rangeland Improvement section. Flint Trail is not scheduled for livestock grazing but may be used on a temporary as-needed basis while other allotments are being rehabilitated or under an emergency situation.

<sup>g</sup>Allocate to big game.

<sup>h</sup>Portions of these would occur on NPS lands. Prior to any action, coordination with the administering NPS office would be initiated.



See Table 2-2 for forage use by allotment.

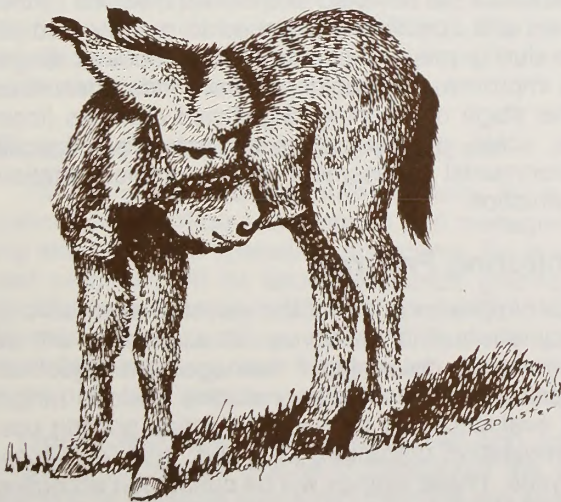
### Alternative C: Manage for Optimum Big Game Production

This alternative is based on the MFP Step 1 recommendations developed by range-wildlife specialists to optimize big game production on the public lands. Management goals would be to enhance big game habitat.

Forage use for big game and livestock would be consistent with the grazing capacity based on 10-12 years of monitoring and trend studies, supported by a recent soil-vegetation inventory. Big game would be given priority in forage use on currently identified crucial ranges. Initially, forage would be provided for prior stable numbers of deer and long-term management goal numbers of bison, antelope, and bighorn sheep, as established by UDWR. Forage for existing numbers of wild burros would also be provided. Adjustments would be made in livestock use to accommodate increased numbers of big game.

Under this alternative, proposed forage use on BLM and Glen Canyon NRA lands would be divided as follows:

Livestock	39,804 AUMs
Bison	3,768 AUMs
Deer	6,127 AUMs
Antelope	960 AUMs
Bighorn Sheep	3,968 AUMs
Burros	100 AUMs



See Table 2-2 for forage use by allotment.

Long-term increases in forage would be allocated according to the following priorities:

1. Provide sufficient forage to meet or exceed UDWR's prior stable numbers for deer and long-term management goals for bison, antelope, and bighorn sheep.
2. Allow livestock numbers to increase to utilize all available non-competitive forage.

BLM and UDWR personnel have discussed the possibility of re-establishing beaver to their former range in the Henry Mountains. The prime area identified is Mt. Ellen Creek, a tributary of Bull Creek.

### Alternative D: Manage for Optimum Livestock Production

This alternative is based on the MFP Step 1 recommendations developed by range-livestock specialists to optimize livestock production on public lands. Management goals would be to increase the forage available to livestock through intensive grazing management and rangeland improvements.

Livestock would be given priority in forage use. Level of use would be adjusted to the estimated grazing capacity based on 10-12 years of monitoring and trend studies, supported by a recent soil-vegetation inventory. Forage would be provided for current numbers of wild burros, deer, and antelope; non-competitive forage would be given to bighorn sheep. Forage would not be provided for bison, and they would be removed.

Under this alternative, proposed forage use on BLM and Glen Canyon NRA lands would be divided as follows:

Livestock	59,528 AUMs
Bison	0 AUMs
Deer	2,323 AUMs
Antelope	87 AUMs
Bighorn Sheep	2,336 AUMs
Burros	100 AUMs

See Table 2-2 for forage use by allotment.

Long-term increases in forage would be allocated according to the following priorities:

1. Provide sufficient livestock forage to meet or exceed active preference.
2. Provide non-competitive forage to big game.





### Alternative E: Preferred Alternative—MFP Step 2 Planning Recommendation

This alternative was developed through BLM's planning process (see Table 2-1). It is based on the recommendations of an interdisciplinary team and is a compromise between competing resource uses. The forage available for livestock and big game was determined using data from 10-12 years of monitoring studies, supported by a recent soil-vegetation inventory. Under this alternative, changes in livestock periods and/or patterns of use are proposed on certain allotments to enhance rangeland productivity or to correct situations causing adverse impacts on watershed or vegetation.

Proposed forage use on BLM and Glen Canyon NRA lands would be as follows:

Livestock	50,487 AUMs
Bison	2,088 AUMs
Deer	5,641 AUMs
Antelope	695 AUMs
Bighorn Sheep	3,930 AUMs
Burros	100 AUMs

See Table 2-2 for forage use by allotment.

Beaver are proposed to be transplanted into the headwaters of Mt. Ellen Creek and Bull Creek.

Long-term increases in forage would be allocated according to the following priorities:

1. Restore active preference suspended by the initial action.
2. Meet UDWR's prior stable numbers for deer and long-term management goals for bison, antelope, and bighorn sheep.

## ADMINISTRATIVE FEATURES COMMON TO ALTERNATIVES

### Implementation Program

BLM personnel and affected permittees will develop Allotment Management Plans (AMPs) to implement the selected grazing management program. If BLM personnel and permittees fail to reach an agreement, an AMP that protects resources will be implemented by decision of the area manager. The permittee will, however, have the right to appeal any such decision.

Livestock grazing levels and recommended patterns of use will be specified in the individual AMPs, as will BLM's and range users' responsibilities for developing and maintaining rangeland improvements and monitoring programs. Each AMP will be implemented by the area manager and livestock permittee as it is completed.

Details of the selected alternative(s) will be further refined and specifically matched to resource conditions during preparation of AMPs. Proposed rangeland improvements could vary from those described at this stage of planning. Significant changes (locations, scale, etc.) would be subject to site-specific environmental assessment prior to implementation/construction.

### Monitoring Program

After implementation of the selected alternative or combination of alternatives, all allotments will be monitored to determine if management objectives are being met. Four primary studies basic to rangeland evaluation will be used: (1) actual grazing use; (2) vegetation utilization; (3) trend; and (4) climate analyses. These studies will be conducted according to BLM Manual procedures. In addition, studies will be established to monitor priority riparian and aquatic habitat and key watershed areas.



Data from these studies will be evaluated to determine management effectiveness and to assist in making necessary adjustments. Evaluations will be made prior to implementation of each step of a phased adjustment to determine whether the total amount of adjustment should be modified (either increased or decreased) (43 CFR 4110.3-2[e]). Each allotment will be evaluated at the end of the second and fourth years and at the conclusion of each grazing cycle. Management will be modified if evaluations determine that specific allotment objectives are not being achieved. Administrative modifications could include changes in livestock patterns or periods of use, livestock numbers, periods of use, rangeland improvements, or a combination of these.

### Implementation Schedule

Within 5 months of publication of this Final Environmental Impact Statement (EIS), the Richfield District Manager and Henry Mountain Resource Area Manager will issue the "Record of Decision Rangeland Program Summary." This document will summarize, by allotment, management decisions and planned actions.

The priority for implementation of the grazing management program will follow the guidelines stated in the BLM Grazing Management Policy. Generally, decisions for allotments in the Maintain Category will be made within 9 months, Custodial Category within 12 months, and Improve Category within 17 months after publication of this Final EIS. Allotments in the Improve Category will have priority for development or revision of AMPs to resolve identified problems. Maintain and Custodial Category allotments will be second and third priority, respectively. The same priority will apply to appropriation of funds for rangeland improvements, although the prioritization of allotments may be altered by investment of funds by individual permittees.

### Grazing Administration Practices

The selected management options from the alternative(s) will be administered and managed using standard BLM operating procedures. Each livestock permittee will be issued temporary grazing authorizations or term permits through the BLM Henry Mountain Resource Area Office. These will specify the allotment, proposed forage use, period and/or pattern of use, numbers, and kinds of livestock.

Livestock grazing will be monitored and supervised by permittees and BLM throughout the year. Marking of livestock (preferred methods are ear tagging or dye marking) may be required to monitor livestock movement and proper stocking levels. Permittees will be required to request, in writing, any

desired changes in use prior to the grazing period, since such changes could be inconsistent with management objectives. Grazing use outside the limits of the selected alternative(s) and without prior authorization will be considered trespass. Should trespass occur, BLM will take action to ensure it is eliminated and that payment is made for vegetation consumed and/or damage done. BLM will also make adjustments in the grazing management program during drought or other emergencies.

Vegetation utilization studies will be used to determine when the desired grazing level has been reached. The actions described in the Monitoring section of this chapter will be used to adjust grazing use.

Administrative adjustments could be made to:

1. Authorize the movement of livestock from one pasture to another ahead of schedule if forage were lacking in the first pasture and available in the second.
2. Reduce livestock numbers temporarily if forage production were less than normal.
3. Increase livestock numbers on a temporary non-renewable basis if there were an abundance of available forage.
4. Adjust livestock use to limit utilization of key plant species to a predetermined level (e.g., 50 percent). Livestock use could be increased, decreased, or eliminated from an allotment to control utilization of key plant species. Rangeland condition, competition between big game and livestock, amount of available forage and water, and time of year will be considered in any decision to move livestock. Such adjustments will be designed to accomplish grazing management objectives.

### Standard Design, Construction, and Operation Features

The following protective measures will be required as standard procedures:

1. No permanent trails or roads will be constructed to project sites. Existing access will be used. Soil disturbance at all projects will be held to a minimum.
2. No vegetation clearing of project sites will be allowed except as authorized by the appropriate Federal official.
3. If necessary, disturbed areas will be reseeded to provide ground cover and minimize soil losses.



4. Site factors such as slope, precipitation, exposure, soil depth, seeding suitability, and erosion hazard will be used to select land treatment sites.

5. A literature search and an on-the-ground survey for threatened, endangered, and sensitive species will be conducted prior to taking action that could affect these species. Should BLM determine that there might be an effect on listed species, formal consultation with the Fish and Wildlife Service (FWS) will be initiated.

6. Cultural surveys and clearances will be required for all project sites (as specified in BLM Manual 8111.14) prior to new construction. BLM has entered into a memorandum of understanding with the Utah State Historic Preservation Officer regarding protection of cultural resources (see Appendix 2).

7. An environmental assessment (EA) will be required prior to ground-disturbing actions if significant modification of actions described in this EIS occur or if resource information becomes available that indicates a need for further examination. The EA would be written to conform with BLM policy, would be site specific, and would supplement this EIS.

8. On allotments receiving land treatment, grazing by livestock will not be allowed until vegetation becomes well established. Two to five complete growing seasons with no livestock grazing will be required for burned or sprayed areas, and 2 full years of rest will be required for areas receiving ground-disturbing projects (e.g., chaining).

9. Water developments will be periodically inspected to ensure that they remain in useable condition. Preventive maintenance will be performed as needed. Cooperative agreements with rangeland users will be solicited by BLM for rangeland improvements, and these agreements will outline specific project maintenance responsibilities.

10. When possible, water for wildlife will be maintained throughout the year at established watering facilities.

11. The appropriate Federal officials will be notified if paleontological remains are encountered during any land treatment or construction activities. Recovery, protection, and preservation measures will be implemented, as necessary, to mitigate adverse impacts.

12. Riparian areas proposed to protect wildlife habitat, aesthetics, and water quality will be fenced. Fencing of riparian areas will be completed as a need is recognized during AMP development.

13. Prior to the development of projects, provisions of the Memorandum of Understanding of April 1, 1979 between the BLM, Forest Service (FS), UDWR, and Soil Conservation Service (SCS) and the master Memorandum of Understanding between BLM and UDWR of June 1979 will be met. These memoranda provide for coordination in the development and establishment of guidelines for buffer zones for water and other developments.

Features specifically applicable to the proposed rangeland improvements are summarized in Table 2-4. The criteria and methodology used to select the proposed rangeland improvements are presented in the Vegetation section of Chapter 4.

## COMPARATIVE SUMMARY OF ENVIRONMENTAL CONSEQUENCES

Table 2-5 summarizes and compares the major environmental consequences of the alternatives. (See Chapter 4 for a detailed discussion of the impacts of each alternative.)



TABLE 2-5

Comparative Summary of Impacts, Irreversible/Irretrievable Commitment of Resources<sup>a</sup> and Relationship of Short-Term Use of the Environment to Long-Term Productivity

Resource <sup>b</sup>	Alternative A: Proposed Action--No Change	Alternative B: No Action	Alternative C: Optimize Big Game	Alternative D: Optimize Livestock	Alternative E: Preferred Alternative--Planning Recommendation	Relationship Between Short-Term Use of the Environment and Long-Term Productivity
Vegetation	Vegetation/trend in ecological condition would decline on 14 percent of the area because of vegetation overutilization. Condition of riparian zones in this area would remain poor. Decreased forage production could be reversible, but forage production lost until vegetation recovered would be irreplaceable.	Vegetation/trend in ecological condition would progressively decline on 56 percent of the area because of vegetation overutilization. Condition of riparian zones in this area would also continue to decline. Decreased forage production could be reversible, but forage production lost until vegetation recovered would be irreplaceable.	Vegetation/trend in ecological condition would generally improve throughout the area. Land treatments would increase available forage by 2,975 AUMs. Riparian areas in the Henry Mountains would improve because of elimination of livestock use on four allotments.	Vegetation/trend in ecological condition would generally improve throughout the area. Land treatments would increase available forage by 2,975 AUMs. Riparian areas would remain in present condition.	Vegetation/trend in ecological condition would generally improve throughout the area. Land treatments would increase available forage by 2,975 AUMs. Improved management has a potential for improvement of riparian condition.	The decline in ecological condition under Alternatives A and B would continue as long as vegetation overutilization occurred. Recovery would, depending on the site, take from a few years to several decades. Generally, the rangelands would improve in forage production and condition as land treatments were implemented and rangeland management intensified in Alternatives C, D, and E.
Soils	Increased erosion could occur on portions of 11 allotments and one unallotted area because of vegetation overutilization. Increased erosion would be reversible, but soil lost would be irreplaceable.	Increased erosion could occur on portions of 21 allotments and one unallotted area (56 percent of the area) because of vegetation overutilization. Increased erosion would be reversible, but soil lost would be irreplaceable.	Land treatments on nine allotments and one unallotted area could cause temporary increased erosion on 24,300 acres; however, these treatments would result in reduced erosion in the long term. Soil lost as a result of land treatments would be irreplaceable.	Same as Alternative C.	Same as Alternative C.	Under Alternatives A and B, increased erosion could cause a loss of soil productivity extending through the long term. Under Alternatives C, D, and E, temporary increases in erosion could result; however, these increases would be reduced in the long term.
Water	Surface water quality could be degraded by higher sediment yield on portions of 11 allotments and one unallotted area because of overgrazing. Degraded water quality could be reversed; however, losses would be irretrievable until water quality was improved.	Surface water quality could be degraded by higher sediment yield on portions of 21 allotments and one unallotted area because of vegetation overutilization. Degraded water quality could be reversed; however, losses would be irretrievable until water quality was improved.	There could be a temporary reduction in surface water quality because of higher sediment yield on nine allotments and one unallotted area receiving land treatments. However, in the long term sediment yield would decline. Thus, there would be no irreversible impacts; however, the temporary degradation of water quality would be irretrievable.	Same as Alternative C.	Same as Alternative C.	Under Alternatives A and B, increased sediment yield could cause a long-term degradation in water quality. Under Alternatives C, D, and E, temporary water quality degradation could result; however, this degradation would be reduced in long term.
Animal Life Mule Deer	No impacts.	Deer numbers would decline because of increased competition for forage. The decline would be reversible, but animals and their offspring lost would be irretrievable.	Deer numbers would increase, although prior stable numbers would not be reached.	Deer numbers could decline slightly in the long term because of increased competition for forage. The decline would be reversible, but animals lost would be irretrievable.	Initial increased competition for forage could cause a decline in numbers until additional AUMs from proposed land treatments were available. Then deer number would be expected to increase over current levels, both in the short and long terms. Any animals lost in the initial period would be irretrievable.	Forage use levels to livestock in Alternatives B and D would lead to a decline in deer numbers over both the short and long terms. The increased forage use level to big game under Alternatives C and E would result in an increase in deer numbers over both the short and long terms.
Bison	In the long term, bison numbers would decline because of competition for forage on two allotments containing crucial bison range. Overutilization would occur on Dry Lakes unallotted area. No change is expected in the short term. The decline would be reversible, but animals lost would be irretrievable.	Bison numbers would decline in the long term because of competition for forage on 11 allotments and one unallotted area containing crucial bison range. The decline would be reversible, but animals lost would be irretrievable.	As livestock use on crucial ranges was eliminated and additional forage was provided, bison numbers would increase to UDWR's long-term management goal.	Bison would be eliminated. The loss would be irreversible, unless transplants from other areas occurred. The animals eliminated would be irretrievable.	Bison numbers would decrease slightly from current levels to a post-hunt herd size of 200 animals, as agreed to by UDWR and BLM. The decrease would be reversible, but animals lost would be irretrievable.	Forage use levels to livestock under Alternatives A, B, D, and E would lead to a decline of or elimination of bison numbers over both the short and long terms. The increased forage use level to big game under Alternative C would result in an increase in bison numbers over both the short and long terms.
Antelope	No impacts.	Antelope would be eliminated. The loss would be irreversible, unless animals were transplanted from other areas. The animals eliminated would be irretrievable.	Antelope numbers would increase substantially in the long term. However, UDWR's long-term management goal would not be reached.	Same as Alternative A.	Antelope numbers would increase substantially in the long term. However, UDWR's long-term management goal would not be reached.	Forage use levels to big game under Alternatives C and E would lead to an increase in antelope numbers over both the short and long terms. Under Alternative B, forage use levels would not include antelope, and they would, therefore, be eliminated.
Desert Bighorn Sheep	No impacts.	Bighorn sheep would be eliminated. The loss would be irreversible, unless animals were transplanted from other areas. The animals eliminated would be irretrievable.	Bighorn sheep numbers could reach UDWR's long-term management goal.	Bighorn sheep could be eliminated because of the increase in livestock use, especially domestic sheep. If eliminated, the loss would be irreversible unless animals were transplanted from other areas; animals lost would be irretrievable.	Bighorn sheep numbers would be expected to increase. However, UDWR's long-term management goal would not be met.	Replacement of the population (Alternative B and possibly D) would require several years. Individual animals and their offspring could not be replaced except by reintroduction.
Visual Resources	On four allotments (5 percent of the area), overgrazing could affect visual resources in highly scenic, visually sensitive areas.	Vegetation overutilization on 13 allotments and one unallotted area (45 percent of the planning area) would cause progressive deterioration of visual resources along the major travel routes and in highly scenic areas.	Rangeland improvements on 16 allotments and one unallotted area, affecting 2 percent of the planning area, and overgrazing on one unallotted area would affect scenic values and violate VRM management class objectives. The principal areas of impact would be Mts. Ellen and Pennell, areas rated highest in scenic quality.	Same as Alternative C.	Same as Alternative C.	Effects on visual quality of the area would occur both in the short and long terms.







TABLE 2-5 (continued)

Resource <sup>b</sup>	Alternative A: Proposed Action--No Change	Alternative B: No Action	Alternative C: Optimize Big Game	Alternative D: Optimize Livestock	Alternative E: Preferred Alternative--Planning Recommendation	Relationship Between Short-term Use of the Environment and Long-Term Productivity
Wilderness <sup>c</sup>	On portions of three allotments and one unallotted area, impacts caused by grazing could violate BLM Interim Management Policy (IMP) non-impairment criteria in two wilderness study areas (WSAs), an area under appeal, and NPS proposed wilderness.	Increased forage utilization caused by grazing on portions of 12 allotments and one unallotted area could violate IMP non-impairment criteria in six WSAs, appeal areas, and NPS proposed wilderness.	Vegetation overutilization caused by grazing on portions of one unallotted area could violate IMP non-impairment criteria in one WSA. Proposed rangeland improvements on 12 allotments and one unallotted area would have to be designed and constructed to meet non-impairment criteria in the five WSAs affected.	Proposed rangeland improvements on portions of 12 allotments and one unallotted area would have to be designed and constructed to meet non-impairment criteria in five affected WSAs.	Same as Alternative C.	Overgrazing could violate IMP non-impairment criteria in the affected WSAs over the long term. Proposed rangeland improvements would have to be designed and constructed to meet non-impairment criteria.
Recreation	On three allotments and one unallotted area, vegetation overutilization would affect primitive and sightseeing values and one developed campground in the long term.	On 12 allotments and one unallotted area, vegetation overutilization would cause progressive degradation of sightseeing, big game hunting, and primitive values. Facilities and recreation values would be impacted by increased numbers of cattle on one unfenced developed campground. Elimination of bighorn sheep and antelope would adversely affect wildlife sightseeing values. Degradation of hunting and sightseeing values could be reversed; opportunities/values lost would be irretrievable.	Rangeland improvements on 16 allotments and one unallotted area would affect sightseeing and primitive values. Increased livestock use would affect undeveloped campsites on five allotments. Numbers of bison, deer, antelope, and bighorn sheep would increase, resulting in improved hunting and sightseeing values.	Elimination of the bison herd would adversely impact sightseeing and hunting values. Rangeland improvements on 16 allotments and one unallotted area would adversely affect primitive and general sightseeing values. Increased livestock use would affect undeveloped campsites on eight allotments. In the long term, bighorn sheep numbers would decrease and impact sightseeing values.	Rangeland improvements on 16 allotments and one unallotted area would affect sightseeing and primitive values. Numbers of deer, antelope, and bighorn sheep would increase and improve hunting and sightseeing values. Increased livestock use would affect undeveloped campsites on seven allotments.	The recreational potential of the area would decrease over both the short and long terms as a result of all alternatives.
Cultural Resources	No impacts.	No impacts.	Ground disturbance during construction of rangeland improvements could inadvertently destroy or damage cultural resources. This loss of scientific and educational information would be irreversible and irretrievable.	Same as Alternative C.	Same as Alternative C.	Intensive cultural resource inventories prior to any ground-disturbing actions would identify previously unknown sites and areas and increase knowledge of the resources. Inadvertent damage to sites could result from ground-disturbing actions. All impacts would last into the long term.
Livestock Grazing	All permittees would receive reductions in active preference averaging 45 percent. Overutilization on six allotments would, in time, cause decreases in livestock productivity.	Although permittees would not receive reductions in active preference, overutilization by 13,235 AUMs on 16 allotments and the resultant decline in available forage would, in time, cause decreases in livestock productivity. Increased use would increase costs of rangeland development maintenance. Area-wide use would increase by 25,337 AUMs on 21 allotments.	Forty-one permittees would receive reductions in active preference. These include: nine permittees affected by elimination of cattle use on four allotments and sheep use on two other allotments. Two of these permittees would receive increases on other allotments. Use on eight allotments would increase. Area-wide livestock use would increase by 8,856 AUMs (29 percent).	Active preference increases on eight allotments would affect 27 permittees; decreases on 16 allotments would affect 35 permittees. Overall, 29 permittees would receive active preference increases; 20 would receive reductions; and seven would receive increases and decreases on different allotments. Livestock use would increase by 28,580 AUMs (192 percent). Sheep use would increase approximately 42 times present average use, affecting four permittees.	Thirty-eight permittees would receive reductions in active preference; 14 would receive increases; and six would receive increases and decreases on different allotments. Overall, livestock use would increase by 19,539 AUMs.	There would be initial reductions in active preference under Alternatives C, D, and E; however, use would increase substantially in both the short and long terms. The level of use could be sustained indefinitely. Under Alternative B, use would increase to levels that could not be sustained without declines in livestock productivity on 16 allotments.
Socioeconomics	Reductions in active preference would reduce average ranch capital values as follows: small, -\$3,660; medium, -\$14,240; large, -\$23,540. Because grazing would remain at existing levels, ranch income would not change, nor would regional economic impacts be expected. Loss of capital values would be reversible, but any actual losses would be irretrievable.	Increased use would increase income to the permittees and the region. In the long term, however, overgrazing would result in losses in income because of vegetation overutilization and lack of rangeland improvements which would force the permittees to reduce livestock numbers. Resulting economic losses would be reversible, but any actual losses would be irretrievable.	For those permittees receiving reductions in active preference, average ranch capital values would decline as follows: small, -\$2,200; medium, -\$9,300; large, -\$13,680. Overall, increases in livestock use and income would benefit the permittees and the regional economy. Loss of capital values could be reversed, but any actual losses experienced would be irretrievable.	For those permittees receiving reductions in active preference, average ranch capital values would change as follows: small, -\$900; medium, -\$2,960; large, +\$1,620. Overall, increases in livestock use and income would benefit the permittees and regional economy. Loss of capital values could be reversed, but any actual losses experienced would be irretrievable.	For those permittees receiving reductions in active preference, average ranch capital values would decline as follows: small, -\$1,720; medium, -\$5,240; large, -\$4,180. Overall, increases in livestock use and income would benefit the permittees and regional economy. Loss of capital values could be reversed but any actual losses experienced would be irretrievable.	Losses incurred could not be recovered.

<sup>a</sup>Irreversible/irretrievable commitment of resources, if any were identified, are listed under the resource/alternative.

<sup>b</sup>None of the alternatives would have impacts on climate, air quality, geology, fish, or land use plans.

<sup>c</sup>Proposed actions which would violate IMP non-impairment criteria could not be taken. Such actions would have to be delayed until Congress decides which WSAs to include in the National Wilderness Preservation System.







# CHAPTER 3

## AFFECTED ENVIRONMENT

### INTRODUCTION

This chapter describes the affected environment of the Henry Mountain Planning Area. It provides the basis for evaluating impacts of the proposed action and alternatives analyzed in Chapter 4. Descriptions presented here are commensurate with the significance of impacts under the proposed action or alternatives and discussions required by law (e.g., threatened and endangered species). Unless otherwise indicated, the discussion presented below pertains to both Bureau of Land Management (BLM) and Glen Canyon National Recreation Area (NRA) lands, but excludes those portions of allotments in Capitol Reef National Park.

The primary sources for information presented in this chapter are the documents developed during the BLM planning process (Unit Resource Analysis [URA], Planning Area Analysis [PAA], and Management Framework Plan [MFP]).

None of the alternatives would have significant effects on climate, air quality, or geology; however, these are briefly discussed to describe the area's setting. Following this discussion are descriptions of vegetation, soils, water resources, animal life, visual resources, wilderness, recreation, cultural resources, land use plans, livestock grazing, and socioeconomics.

### THE SETTING

The planning area is located along the western edge of the Colorado Plateau physiographic province. Six basic landforms comprise the area: canyons, sand deserts, hogback ridges, badlands with mesas, mountains, and piedmont gravel benches (Hunt et al., 1953).

Elevations vary from 3,700 feet, along the shores of Lake Powell, to 11,615 feet above mean sea level on Mount Ellen. Colorado, Dirty Devil, Fremont, and Muddy Creek are the major rivers. All drainages are tributary to the Colorado River.

Climatic variations correlate to differences in elevation. Lower elevations are characterized by aridity with less than 5 inches of precipitation at Hanksville while areas in the Henry Mountains average over 30 inches of precipitation annually. The meager amount of precipitation at lower elevations is caused by the rainshadow effect of the high plateaus located west of Capitol Reef National Park. Wide

daily and annual variations in temperature (Hanksville [4,456-foot elevation] January mean average 25° F; July mean average 79° F) and well-defined seasons are typical.

Air quality has been designated as Class II by the U.S. Environmental Protection Agency (EPA). This classification permits moderate deterioration which normally accompanies well-controlled growth. Two Class I areas border the planning area: Capitol Reef National Park on the west and Canyonlands National Park on the east. Class I areas are those in which practically any air quality deterioration would be considered significant. Regional concentrations of sulfur dioxide (SO<sub>2</sub>), total suspended particulates (TSP), and nitrogen oxides (NO<sub>x</sub>) are generally well below the National Ambient Air Quality Standards (Environmental Research and Technology, Inc., 1977). No major air pollution sources are found, nor have polluted airsheds been identified within the planning area.

### VEGETATION

Vegetation diversity is high. A wide range in elevation and precipitation allows development of vegetation types from nearly all the major vegetational zones of Utah. Only creosote bush and alpine tundra zones are absent. About 725 taxa (about 700 species) in 317 genera and 76 families have been recorded for the Henry Mountain structural basin. Floristically, the planning area lies within the Canyonlands section of the Colorado Plateau division of the Great Basin (Neese, 1981).

There are seven major altitudinal vegetation zones that occur between the top of Mt. Ellen at 11,615 feet and the surface of Lake Powell at 3,700 feet, a range in elevation of 8,000 feet. The major vegetation zones can be broken down into vegetation types (Table 3-1) for characterizing condition and production potential.

### Major Vegetation Zones

#### WARM-DESERT SHRUB ZONE

This vegetation zone occurs in the lowest, warmest, and generally driest areas. It is transitional between the creosote bush communities, common to the Mojave Desert, and the cool-desert shrub communities common throughout most of the Great Basin. This zone is best developed on the deserts below 5,000 feet to the east and south of the moun-



tains, where soils derived from sandstone strata are well drained and tend to be non-saline.

### COOL-DESERT SHRUB ZONE

This vegetation zone is the largest in the planning area and also in the Mountain West. It includes vegetation types developed on fine-textured and well-drained saline to neutral soils between 5,000- and 7,000-foot elevations. This zone interfingers with the warm-desert shrub below and the pigmy forest above. Because of the different soils and environments (i.e., badlands, low mesas, deserts, washes, alluvial fans, saline seeps, and streams), the cool-desert shrub zone is the most complex of the zones in the planning area. Within the cool-desert shrub zone, there are several more or less well developed distinct communities, including shadscale, mat atriplex, greasewood, cottonwood, saltgrass, salt marsh, big rabbitbrush, galleta-three awn grassland, and little rabbitbrush-mixed desert shrub.



Galleta

### PIGMY FOREST ZONE

The pigmy forest or pinyon-juniper woodland occurs mostly between 6,000 and 8,000 feet in areas receiving above 12 inches of annual precipitation. In the Henry Mountains, this zone covers the

foothills between the deserts and the higher montane communities, forming a distinct band of trees, often with little or no understory of shrubs and herbaceous plants.

Juniper is most common at lower elevations and pinyon pine enters the community at mid elevations, becoming co-dominant with juniper. Pinyon pine dominates the higher elevations. Big sagebrush is a common understory species throughout the zone. Transition to ponderosa pine or mountain brush at the upper limits is often gradual, with pinyon, juniper, scrub oak, ponderosa, aspen, and Douglas fir communities intermingled.

### PONDEROSA PINE-MOUNTAIN BRUSH ZONE

Ponderosa pine-mountain brush comprise two major vegetation types developing mostly between 8,000- and 9,000-foot elevations. However, the zone descends to 7,000 feet on north-facing drainages and is as high as 10,000 feet on the dry south slopes of Mt. Hillers and Mt. Pennell.

The scrub oak-mixed mountain brush community is dominated by Gambels oak, with the most extensive and uniform stands occurring as a broad band in the trough between Mt. Pennell and Mt. Hillers. Less extensive stands occur on the south slopes of Mt. Ellen on the northwest side of Mt. Pennell.

Ponderosa pine occupies somewhat rockier, steeper, and cooler sites and tends to form open forests of medium to tall trees. This community is extensively developed on Mt. Hillers, encircling the mountain and extending nearly to the summit on drier slopes. A comparable, although less extensive, zone occurs on Mt. Pennell.

### MONTANE ZONE

Altitudinal range of this zone is mostly between 8,500- and 10,500-foot elevations; the zones above 8,500 feet receive the highest annual precipitation. In most of the mesic drainages and in areas where snowbanks are long persistent, a dense mixed forest dominated by Douglas fir, white fir, and aspen has developed.

### SUBALPINE ZONE

This zone is well developed only on Mt. Ellen and is comprised of two different vegetation types: the subalpine forest dominated by Engelmann spruce and subalpine fir, and a subalpine grassland dominated by species of blue grass and fescue. Limber pine occasionally occurs on rocky, exposed sites, and small groves of aspen occupy protected niches.



TABLE 3-1  
Vegetation Types

ALLOTMENTS	Grass		Perennial Forbs		Greasewood		Winterfat		Shadscale Salt Bush		Mixed Desert Shrub		Sagebrush Rabbitbrush		Sand Sage		Mtn. Shrub		Blackbrush		Snakeweed		Mormon Tea		Broadleaf Trees		Conifer		Pinyon-Juniper		Barren		Annual Grasses		Annual Forbs		Total Acres	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%				
0100 Blue Bench	8,262	8	--	--	5,100	5	--	--	29,830	29	3,076	3	1,966	2	--	--	--	--	--	--	--	--	1,510	1	--	--	397	<1	3,324	3	39,191	38	--	--	9,968	10	102,624	
0101 Bullfrog	6,601	7	--	--	182	<1	--	--	17,810	19	5,603	6	3,181	3	100	<1	--	--	6,104	7	400	<1	1,459	2	139	<1	--	--	4,004	4	44,800	48	--	--	2,441	3	92,824	
0102 Burr Point	16,181	22	--	--	138	<1	--	--	3,585	5	--	--	389	<1	62	<1	--	--	34,873	47	--	--	--	--	--	--	5	<1	511	1	18,695	25	--	--	272	<1	74,711	
0600 Cathedral	7,546	6	--	--	1,716	2	--	--	14,819	12	6,093	5	624	1	2,835	2	--	--	--	--	--	--	12,265	10	--	--	--	--	--	--	60,761	51	--	--	12,334	10	118,993	
0103 Cedar Point	3,984	7	--	--	--	--	--	--	2,998	5	6,361	11	287	<1	41	<1	1,812	3	25,895	45	--	--	--	--	--	--	--	--	394	1	14,273	25	374	<1	1,603	3	58,022	
0104 Crescent Creek	967	10	175	2	--	--	--	--	--	--	5	<1	1,070	11	--	--	915	9	--	--	--	--	--	--	66	1	1,087	11	4,317	44	1,101	11	--	--	--	--	9,703	
0106 Dry Lakes	--	--	468	4	--	--	--	--	--	--	--	--	993	9	--	--	340	3	--	--	--	--	--	--	546	5	693	7	7,247	67	482	5	--	--	--	--	10,769	
0900 Flint Trail	8,888	8	--	--	--	--	--	--	6,752	6	10,227	9	2,359	2	10	<1	--	--	17,676	15	528	<1	1,153	1	--	--	--	--	13,948	12	53,532	46	--	--	316	<1	115,389	
0107 Hanksville	7,112	8	99	<1	3,509	4	--	--	12,108	13	6,365	7	183	<1	8,965	10	2,058	2	8,822	10	--	--	16,599	18	108	<1	--	--	5,263	6	11,141	12	--	--	8,322	9	90,654	
0603 Hartnet	3,166	12	--	--	326	1	--	--	5,491	21	2,091	8	1,806	7	1,152	4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	10,780	41	--	--	1,452	6	26,264	
0120 Little Rockies	575	1	--	--	--	--	--	--	3,103	5	5,376	8	781	1	--	--	--	--	25,593	38	--	--	--	--	--	--	--	--	274	<1	30,860	46	--	--	128	<1	67,690	
0108 Nasty Flat	1,487	9	712	4	--	--	--	--	22	<1	--	--	2,669	15	--	--	595	3	--	--	--	--	--	--	750	4	724	4	8,516	49	1,866	11	--	--	--	--	17,341	
0610 North Bench	2,661	10	--	--	199	1	--	--	2,064	8	553	2	191	1	--	--	--	--	--	--	--	--	1,264	5	--	--	--	--	--	--	15,649	61	--	--	2,880	11	25,461	
0700 North Caineville Mesa	65	3	--	--	--	--	--	--	539	26	240	12	--	--	--	--	32	1	--	--	--	--	--	--	--	--	--	--	--	--	1,209	58	--	--	--	--	2,085	
0109 Pennell	3,459	5	54	<1	--	--	--	--	252	<1	24	<1	3,275	5	--	--	8,351	13	--	--	11	<1	--	--	473	1	7,394	12	30,586	48	9,357	15	--	--	18	<1	63,254	
0901 Robbers Roost	36,261	18	--	--	89	<1	138	<1	1,324	<1	3,451	2	2,286	1	5,651	3	3,058	1	32,330	16	1,804	1	9,386	5	82	<1	--	--	31,832	15	72,501	35	--	--	5,736	3	205,929	
0110 Rockies	5,995	4	--	--	135	<1	--	--	4,249	3	23,044	14	5,726	3	--	--	192	<1	47,266	28	1,832	1	388	<1	59	<1	331	<1	18,204	11	56,270	33	1,609	1	3,738	2	169,038	
0111 Sandy 1	2,793	9	--	--	3,184	11	--	--	2,519	8	1,773	6	1,015	3	--	--	--	--	--	--	--	--	3,722	12	--	--	--	--	6,634	22	8,007	27	--	1	500	2	30,147	
0112 Sandy 2	2,286	4	--	--	5,454	10	--	--	5,032	9	--	--	567	1	--	--	--	--	--	--	--	--	2,910	5	--	--	--	--	24,167	44	12,974	23	--	--	2,036	4	55,426	
0113 Sandy 3	71	1	--	--	1,025	17	--	--	873	14	--	--	1,749	29	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1,424	23	972	16	--	--	--	--	6,114	
0114 Sawmill Basin	--	--	1,015	10	--	--	--	--	--	--	--	--	206	2	--	--	592	6	451	5	--	--	--	--	712	7	2,066	21	4,107	42	655	7	--	--	--	--	9,804	
0902 Sewing Machine	11,359	9	--	--	--	--	--	--	14,129	11	6,659	5	380	<1	132	<1	--	--	28,149	22	292	<1	--	--	--	--	--	--	12,259	9	55,957	43	--	--	--	--	129,316	
0701 South Caineville Mesa	--	--	--	--	--	--	--	--	95	2	1,672	43	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	695	18	1,461	37	--	--	--	--	3,923	
0115 Steele Butte	1,487	2	--	--	122	<1	--	--	19,991	24	1,752	2	1,702	2	--	--	915	1	--	--	1,650	2	--	--	--	--	--	--	35,083	42	20,741	25	--	--	--	--	83,443	
0116 Trachyte	2,730	5	--	--	--	--	--	--	2,408	4	3,976	7	740	1	--	--	86	<1	31,193	53	--	--	83	<1	--	--	312	<1	3,756	6	12,042	20	--	--	2,071	3	59,397	
0117 Waterpocket	5,541	8	--	--	--	--	--	--	10,420	14	4,594	6	13	<1	628	1	--	--	24,340	33	2,001	3	3,438	5	508	<1	--	--	122	<1	18,370	25	2,577	3	1,132	2	73,684	
0613 Wild Horse	3,352	5	--	--	730	1	957	1	11,966	18	4,202	6	2,543	4	--	--	651	1	--	--	--	--	7,033	11	--	--	--	--	--	--	31,851	48	--	--	2,875	4	66,160	
Total	143,829	8	2,523	<1	21,909	1	1,095	<1	172,379	10	97,137	6	36,701	2	19,576	1	19,597	1	282,692	16	8,518	1	61,210	4	3,443	<1	13,009	1	216,667	12	605,498	34	4,560	<1	57,822	3	1,768,165	
Vegetated Barren	1,162,667 Acres		66 Percent		604,598 Acres		34 Percent																															







### ALPINE ZONE

The environment on the summit ridges of Mt. Ellen above 11,000-foot elevation exceeds the tolerance of alpine fir and Engelmann spruce. Alpine-type (tundra-like) vegetation occupies pockets of soil in boulderfields on ridges and steep slopes.

### RIPARIAN ZONE

Riparian zones are those areas associated with streams, lakes, and wet areas where plant communities are predominately influenced by their association with water. They are key areas for a wide variety of uses. Wildlife biologists have suggested that mountain riparian zones are critical habitats in maintaining viable populations of fish, birds, small and big game animals (Ames, 1977; Hubbard, 1977). These areas are extremely important in providing forage and water for domestic animals (Phillips, 1965; Cook, 1966). Watershed specialists have indicated that the riparian zone plays an integral role in water quantity and quality (Horton and Campbell, 1974). BLM is committed to protect and enhance riparian and wetland areas (BLM Manual 6740 and Executive Order 11990 [42 FR 26961]).

Riparian areas are often subject to impacts from users. Wildlife and livestock concentrate in these areas, creating a substantial impact on browse and herbaceous vegetation. Recreationists camp, picnic, fish, and hunt along streams, occasionally inflicting damage. Roads and logging activities can also greatly affect the riparian zone. Often the users which are so dependent on a riparian zone are also principal instruments of damage (Roath and Krueger, 1982).

Riparian zones occupy a relatively small but important part of the area. Vegetation surveys specific to riparian zones were limited to a relatively small number of sites. The soil-vegetation inventory (United States Department of Interior [USDI], BLM and Earth Environmental Consultants, 1980) identified and classified the ecological condition of riparian vegetation occupying small strips along major stream courses, intermittent streams, flood washes, and seeps and springs.

Of the 113 streams in the planning area, 46 have been surveyed. Streams surveyed comprised 14,353 acres of riparian vegetation. Of these, 5,607 acres (39 percent) are in good condition, 1,583 acres (11 percent) are in fair condition, and 7,163 acres (50 percent) are in poor condition. There are limited data available on the 67 unsurveyed streams.

### Threatened, Endangered, and Sensitive Plant Species

Much of the planning area is a harsh environment where conditions for plant growth are poor. Few plants are capable of becoming established, and competition is limited. Such circumstances favor the evolution of rare and restricted plant species. Table 3-2 lists threatened, endangered, or sensitive plant species which are known or are likely to occur in the planning area, along with their known habitat, distribution, and current status. This table does not reflect an area-wide on-the-ground survey, and is, therefore, probably incomplete at this time. The only plant occurring within the planning area which is currently officially listed by the Fish and Wildlife Service (FWS) is *Sclerocactus wrightiae*, or Wright's fishhook cactus. This plant is listed as endangered.

### Current Ecological Stage, Forage Production, and Potential

Livestock were first introduced in the period of 1881 to 1900. Heavy, unregulated grazing use by cattle and sheep led to a striking alteration of native vegetation and an increase of spiny, unpalatable or poisonous plant species (Stanton, 1931). With the resulting reduction in ground cover, surface runoff and erosion increased in many areas.

Regulation of grazing and other land uses in recent years has generally improved ecological condition and reduced soil erosion, although evidence of overgrazing still exists. Non-native, weedy annual plant species have become established; cheatgrass, Russian thistle, sunflowers, and various unpalatable mustards are common. There has been a gradual replacement of herbaceous species by woody species of lower forage value. Tamarisk or salt cedar (an introduced undesirable shrubby tree) has become the dominant streamside and floodplain species at lower elevations, following its introduction for erosion control along flood channels.

Since the passage of the Taylor Grazing Act in 1934, BLM has, in cooperation with the local livestock permittees, attempted to restore or enhance the rangeland's productivity. Many areas of pinyon-juniper and sagebrush have been cleared and seeded; grazing systems have been established on some allotments; and rangeland improvements (i.e., water developments and fences) have been installed to improve livestock distribution. Periods and/or patterns of use have been altered and livestock numbers reduced to improve plant vigor and vegetation composition. These actions have had various degrees of success, as evidenced by current ecological condition and a comparison of current forage production with potential.



TABLE 3-2

Preliminary List of Threatened, Endangered,  
or Sensitive Plants and Their Known Habitats

Asclepias ruthiae Maguire

Emery County, 3 miles north of Hanksville (4,700 ft. elevation); Sandy Bench, Ephedra, Amsonia community (Harrison, 1947).

Wayne County, 14.6 miles east of Caineville on US-24; moderate SW slope, desert shrub zone, 10 percent cover Ephedra-sage-Hillaria (Woodruff, 1973).

Wayne County, T. 28 S., R. 9 E. Sec. 5, Summit of North Caineville Mesa, about 13.5 mi. due WNW of Hanksville (6,000 ft. elev.); Emery sandstone formation, mixed grass-shrub community, sandy silt (S, E and M Welsh, 1978).

Status: Category 1 (Federal Register [F.R.] Dec. 15, 1980).

Astragalus barnebyi Welsh and Atwood

Garfield County, Henry Mountain Kings Ranch (5,000 ft. elevation); gravelly bench (Cottam, 1953). Wayne County, Summit of North Caineville Mesa, T. 28 S., R. 9 E. Sec. 5.; Emery sandstone member of Mancos shale, Rimrock. About 13.5 mi. WNW of Hanksville at 6,000 ft. elevation (S. Welsh, K. Taylor, F. Peabody, 1976).

Status: Category 1 (F.R. Dec. 15, 1980).

Astragalus henrimontanensis Welsh

Garfield County; habitat; Quarternary Alluvium and Colluvium over various geologic strata, gravelly loam soil mixed ponderosa pine, pinyon, juniper and sagebrush community (elevation 7,400 to 9,200 feet.) Wayne County, Henry Mtns. T. 31 S., R. 10 E. Sec. 14. SW facing slope, spruce, ponderosa, aspen community (Neese, 1976).

Wayne County, Henry Mountains T. 31 S., R. 10 E. Sec. 31; ponderosa, pinyon pine, sagebrush community (Neese, 1976).

Status: Category 2 (F.R. Dec. 15, 1980)

Astragalus monumentalis Barneby

Garfield and San Juan Counties, Utah; Cedar Mesa sandstone formation, crevices in rimrock and other slickrock sites; pinyon, juniper and warm desert shrub communities (elevation 4,000-6,100 ft.).

Status: Category 1 (F.R. Dec. 15, 1980).



TABLE 3-2 (continued)

Astragalus harrisonii Barneby

Wayne County, natural bridge, Capitol Reef Monument; Navajo Blow Sand, canyon bottom, pinyon-juniper community. Welsh, SL-5217 (00055833) 1 May 1966 - Navajo sandstone formation, sandy rock ledges and talus slopes along the canyon.

Status: Category 1 (F.R. Dec. 15, 1980)

Dalea epica Welsh

Garfield County, Ticaboo Shelf Spring, 15 mi. SE of Mt. Hillers, Henry Mtns. (4,800 ft. elevation); Navajo sandstone, slickrock RHVS, Cowania, Yucca, Navajo sandstone, Bedrock and sandstone (Arnow, 1971).

Status: Category 2 (F.R. Dec. 15, 1980).

Eriogonum cronquistii Reveal

Garfield County; loose decomposed granite talus slopes on the west side of Bull Mountain, Henry Mountains at 8,300 ft. elevation (Holmgren and Reveal, 1967).

Status: Category 2 (F.R. Dec. 15, 1980).

Eriogonum ostlundii M. E. Jones

Garfield County, Henry Mountains (4,300 ft. elevation); sandy soil (Stanton, 1932). Habitat: clay hills and slopes, cool desert shrub and pinyon-juniper communities.

Wayne County, 2.5 mi. north of Highway 24 on Sand Creek Road, west of Torrey; sandy soil, pinyon-juniper community, (Atwood, 1978).

Status: Category 2 (F.R. Dec. 15, 1980).

Eriogonum smithii Reveal

Emery County, San Raphael Desert, east side of summit, 10 mi. SE on Desert road. .50 mi. so. of Goblin Valley (5,500 ft. elevation), red seleniferous sand, Astragalus and Ephedra community, (Holmgren and Reveal, 1966).

Status: Category 1 (F.R. Dec. 15, 1980).

Euphorbia nephradenia Barneby

Wayne County, about 3 miles east of Flat Top well on road to Maze, Utah Highway 24; stable dune sand, eriogonum, leptophyllum, Ephedra viridis (Welsh, Atwood, Moore, 1970).

Status: Category 3C (F.R. Dec. 15, 1980).



TABLE 3-2 (concluded)

Hymenopappus filifolius Hook var. tomentosus (Rydb.) Turner

Garfield County, 50 miles southwest of San Raphael (5,000 ft. elev.); dry sandy knolls (Harrison, 1934).

Wayne County, Henry Mountains 9 miles south Hanksville transect No. 3 (4,900 ft. elevation); Mancos shale, nearly bare slopes (Harrison, 1947).

Garfield County, Crescent Creek, Mt. Ellen, Henry Mountains (5,000 ft. elevation); streamside (Stanton, 1930).

Status: Category 3C (F.R. Dec. 15, 1980).

Phacelia indecora J. T. Howell

Wayne County, 19 miles west of Hanksville, (4,400 ft. elevation) milepost 85; clay soil and lava hill, open bare space, shadscale, Ephedra and blackbrush (Atwood, 1968).

Status: Category 1 (F.R. Dec. 15, 1980).

Pediocactus winkleri

Garfield County, one population east of Oyster Shell Reef in Henry Mountain Resource Area (HMRA), (Greenwood, 1978-80).

Status: Category 1 (F.R. Dec. 15, 1980).

Sclerocactus wrightiae L. Benson

Utah, Wayne County, Summit of North Caineville Mesa, T. 28 S., R. 9 E. Sec. 5; Emery sandstone member of Mancos shale, Rimrock (Welsh, Taylor, and Peabody, 1976).

Wayne County, T. 28 S., R. 9 E., Sec. 6, west base of North Caineville Mesa, about 14.5 miles WNW of Hanksville (5,200 ft. elevation); Bluegate Shale formation, Atriplex Community (S., E. and M. Welsh, 1978).

Status: Officially listed as endangered (F.R. June 16, 1976).

Source: USDI, BLM, 1982.



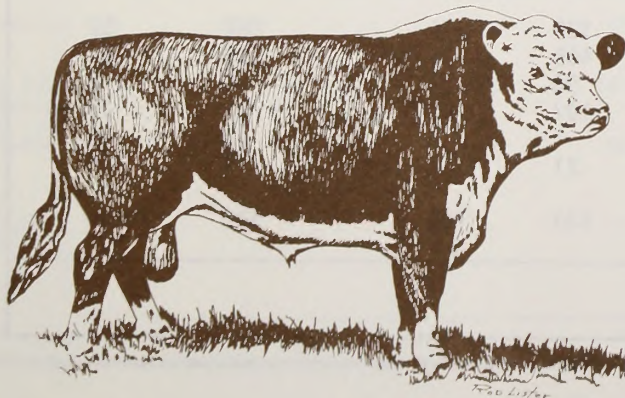
## Ecological Condition

Ecological condition, as used in this environmental impact statement (EIS), is based on the ecological concept which relates the current condition of the range to the potential of which it is naturally capable (USDI, BLM and Earth Environmental Consultants, Inc., 1980; Stoddart, Smith, and Box, 1975; Society for Range Management, 1974). This method of range condition classification separates each range site into four stages or condition classes: climax, late, mid, or early. Climax is synonymous with natural potential or a plant community that is the result of all natural environmental factors including fire and use by native animals.

Judgment of ecological condition is based on how pristine an area is. (A pristine area is a relict area that has never been grazed by livestock or otherwise disturbed.) However, this does not mean that pristine or climax condition is always the management objective. It serves only as a guide to indicate what quality and quantity of vegetation an area is capable of supporting, the character of the litter cover, and the normal appearance of the soil surface (USDA, Forest Service [FS], 1982b).

Climax ecological condition does not always equate to a high rangeland condition class for livestock and big game. However, in the Henry Mountain Planning Area, climax condition often equates with the best multiple-use compromise between grazing use and forage, watershed, and soil preservation values.

An example of climax pinyon-juniper on an upland stoney, loam range site is "an open stand of Utah juniper and pinyon pine with grass and shrub understory and a grass and shrub mix in open areas." The composition by weight is 25 percent shrubs, 25 percent trees, 45 percent grasses, and 5 percent forbs." (USDI, BLM and Earth Environmental Consultants, Inc., 1980).



The following four ecological condition classes were used:

Stages	Percent of Natural Potential
Climax	76-100
Late	51-75
Mid	26-50
Early	0-25

Rangelands were classified as to ecological condition based on the soil-vegetation inventory. Of the 1,312,021 acres of BLM public lands inventoried, 66 percent were classified as to condition, showing 3 percent in climax, 18 percent in late, 63 percent in mid, and 16 percent in early stages (see Table 3-3). Thirty-four percent of the planning area was classified as barren. Appendix 3 provides a summary of vegetation trend, utilization, diet, and climate data.

The North and South Caineville Mesas are the only extensive areas showing major portions (in excess of 95 percent) in climax condition. There are five allotments (Waterpocket, Sandy 2, Sewing Machine, Cedar Point, and Robbers Roost) having in excess of 30 percent in late and climax stages. Conversely, there are four allotments (North Bench, Cathedral, Trachyte, and Sawmill Basin) and one unallotted area (Flint Trail) showing 30 or more percent in early stages.

Trend was based on study plots located in the key areas of each allotment. Of the 127 trend plots located in key areas of the planning area, 32 percent are improving, 48 percent are stable, and 20 percent are declining (see Table 3-3).

Plant species listed as key to livestock grazing (see Appendix 3) occupy a relatively high percentage of the ground cover of each trend study plot and generally furnish a major proportion of the forage consumed by livestock. Each grass species, in particular, may represent between 10 to 40 percent of the plant composition by weight for any given site. Trend studies within each of 19 allotments authorized for livestock grazing contain the following data: (1) years of records; (2) licensed use in percent of active preference for the 5 years prior to 1981; (3) key and other indicator species; (4) utilization studies summarized for years prior to 1975, 1975-1979, and for 1979-1981; (4) trend for key species (browse, seedlings, cool season grasses, warm season grasses); and (5) trend by photo record, index and best long-term estimate based on an overall evaluation of all study data (see Appendix 3).



## Seedings

A total of 6,878 acres, including 6,290 acres of public lands, have been seeded. Table 3-3 lists the acreage seeded by allotment. Most of the sites were prepared by chaining pinyon-juniper and seeding a mixture of cool-season grasses (crested wheatgrass and some intermediate wheatgrass) and alfalfa. Most of the seedings have held up fairly well under grazing and still retain a high composition of alfalfa as well as introduced grasses.

Dry weight production shortly after seeding ranged between 500 and 1,200 lbs. per acre. Current soil-vegetation inventory estimates of total dry weight production vary from 500 and 1,300 lbs., and estimates of grazing capacity for cattle vary from 2 and 8 acres per animal unit month (AUM). Representative seedings in the Pennell Allotment showed the production and plant composition given in Table 3-4.

## Poisonous Plants

Poisonous plants of major concern include several species of *Astragalus* (locoweeds), *Oxytropis* (crazyweed), *Asclepias* (milkweed), and *Hymenoxys richardsonii* (Colorado rubber weed). Livestock losses caused by poisonous plants date back to the early history of grazing use in the area. Milkweed was especially troublesome along the livestock trails when many sheep herds grazed the area. Locoweeds are and is still a problem, especially on early spring range. Selenium-bearing plants such as *Stanleya pinnata* (prince's plume) and locoweeds have been responsible for major sheep losses.

## Range Potential

Current production of climax vegetation expressed as a percent of the natural potential on native rangelands is estimated to range from a low of 43 percent for the Cathedral Allotment to a high of 100 percent on North Caineville Mesa, an area presently unallotted to grazing (Table 3-3). The high for an allotment currently under livestock grazing is 61 percent on Sewing Machine.

Documentation is insubstantive on the effectiveness of using grazing management to increase grazing capacity on native, desert, and, in particular, semi-desert rangelands. Studies with cattle at several Western research stations do not show significant increases in grazing capacities (in AUMs) within 5- to 20-year time frames as a result of using only improved management. Most grazing studies compare continuous season-long grazing with deferred-rotation grazing. Cattle gains, ground cover, plant composition, and dry weight production of vegetation were used as indexes to change (Fisher and Marion, 1951; Hubbard, 1951; Hutchings and Stewart, 1953; Hyder and Sawyer, 1951; McIlvain and Savage, 1951; Rogler, 1951; Sampson, 1951; Stoddart, Smith, and Box, 1975).

Moderate, continuous season-long grazing generally favors the maintenance of a productive rangeland and livestock production. However, study and documentation of community dynamics sites have been achieved at only a broad level, and only a broad estimate of potential forage production is attainable by grazing management alone.

TABLE 3-4  
Pennell Allotment Seedings

Species	Site 1		Site 2		Site 3	
	lbs/ac.	Percent Composition	lbs/ac.	Percent Composition	lbs/ac.	Percent Composition
Crested Wheatgrass	847	63	329	62	262	52
Total Grass	906	68	405	76	309	61
Alfalfa	215	16	88	17	0	0
Total Forbs	255	19	107	20	69	14
Pinyon/Juniper	2	1	1	1	63	13
Total Shrubs	179	13	21	4	125	25
Total Vegetation	1,340	100	533	100	503	100

Source: USDI, BLM, 1982a.



TABLE 3-3  
Ecological Condition, Trend, Grazing Use, Production Potential, Acreage Seeded, and Forage Utilization  
With Comparisons of Grazing Capacity Estimates<sup>a</sup>

ALLOTMENTS	Land Status in Acres	Rangeland (Percent)	Current Ecological Successional Stage of Rangeland (%)				Trend in Range Condition				Active Preference (AUMs)	Average Licensed Use (AUMs)	Current Big Game Use (AUMs)				Adjudicated Livestock Period of Use	Actual Period Used	Average Utilization Key Species Prior to 1976	Average Utilization Key Species Since 1976	Forage Available (AUMs) Based on Inventory			Inventory Based Available Forage as a Percent of Preference		Forage Available (AUMs) Based on Studies <sup>e</sup>	Study Based Available Forage as a Percent of Preference		Current Production % of Natural Potential on Native Rangeland		Acres of Reseeded Rangeland	Studies Support Inventory <sup>f</sup>	
			Climax	Late	Mid	Early	No. Plots	Imp (%)	Stable (%)	Decl. (%)			Bison	Deer	Antelope	Bighorn Sheep					Cattle	Sheep	Bison	Preference	Average Use	Livestock	Bison	Preference	Average Use	Native Rangeland			
Blue Bench	BLM 87,926 S 13,477 P 1,221 T 102,624	61	0	10	82	8	8	25	63	12	4,598 C	2,161 C	5 <sup>b</sup> (8)	34	0	0	9/1-5/31 C	Same	61	40	2,753	0	4 (8)	60	127	2,357	8	51	109	51	0	Yes.	
Bullfrog	BLM 82,546  S 9,423 NRA 855 T 92,824	51	2	19	61	18	7	43	29	28	3,120 C 322 S	2,106 C 120 C S	74 (97)	62	0	0	10/1-5/31 C&S	11/1-5/31	45	38	2,356	679	45	C 76 S 209	119 566	--	--	--	--	52	0	Insufficient information.	
Burr Point	BLM 66,250  S 7,862 P 599 T 74,711	75	0	7	85	8	7	29	71	0	2,138 C 2,279 S	1,691 C 0 S	15 (35)	32	11	0	9/1-5/31 C 10/1-5/5 S	10/16-5/31 11/6-5/31	42	26	1,091	1,174	15	C 51 S 47	65 ∞	2,481	15	56	147	50	331	Yes.	
Cathedral	BLM 104,645 S 12,818 P 1,530 NP 11,688 T 130,681	48	0	4	64	32	8	13	62	25	2,503 C	1,360 C	0	121	0	0	10/1-5/31 C	Same	NO	NO	1,871	0	0	75	138	--	--	--	--	43	0	Insufficient information.	
Cedar Point	BLM 52,152 S 5,862 NRA 8 T 58,022	75	4	28	61	7	4	50	50	0	495 C 2,998 C 1,892 C	278 C 1,638 839 C	8 (15)	52	19	0	9/1-5/31	Same	NO	NO	1,273	0	6 (9)	67	152	--	--	--	--	57	397	Yes.	
Crescent Creek	BLM 8,488 S 1,114 P 101 T 9,703	68	0	11	74	15	4	25	50	25	332 C	333 C	65	81	0	0	6/1-9/15	Same	61	49	187	0	55	56	56	312	55	94	94	49	877	Yes, in direction only.	
Dry Lakes (unallotted area)	BLM 9,527 S 1,235 P 7 T 10,769	78	0	12	88	<1	0	--	--	--	n/a	n/a	100 (226)	59	0	0	--	--	ND	ND	0	0	88 (190)	--	--	--	--	--	--	53	0	No livestock grazing.	
Flint Trail (unallotted area)	BLM 31,552 S 12,037 NRA 71,800 T 115,389	43	5	17	47	31	0	--	--	--	n/a	n/a	0	166	0	0	--	--	NO	NO	0	0	0	--	--	--	--	--	--	49	0	No livestock grazing.	
Hanksville	BLM 79,759  S 9,136 P 1,759 T 90,654	87	<1	11	66	23	6	50	33	17	4,538 C 1,462 S	2,848 C 0 S	18	44	19	0	9/1-5/31 C 10/1-5/5 S	10/1-5/31 12/16-3/31	NO	NO	6,159	4,056	18	C 136 S 277	216 ∞	--	--	--	--	47	0	A distribution problem.	
Hartnet	BLM 23,396 S 2,766 P 102 NP 67,440 T 93,704	59	0	15	84	1	9	0	89	11	1,021 C	599 C	0	103	0	0	11/1-5/31 C	Same	64	31	967	0	0	95	161	934	--	91	156	54	0	Yes.	
Little Rockies (unallotted area)	BLM 29,475 S 2,801 NRA 35,414 T 67,690	56	10	10	79	1	0	--	--	--	1,917 C 2,938 n/a	1,111 C 1,710 n/a	0	16	0	0	--	--	NO	NO	--	0	0	--	--	--	--	--	--	57	0	No livestock grazing.	
Nasty Flat	BLM 13,851 S 2,230 P 1,260 T 17,341	76	0	16	77	7	6	17	33	50	474 C	468 C	685 (73)	71	0	0	6/1-9/30	Same	53	56	399	0	576	84	85	385	576	81	82	52	1,081 60	Yes.	
North Bench	BLM 22,776 S 2,685 T 25,461	37	0	25	41	34	3	67	33	0	456 C	45 C	0	39	0	0	9/1-11/30	Same	42	ND	306	0	0	67	680	--	--	--	--	48	0	Yes.	
No. Caineville Mesa (unalot- ted area) Pennell	BLM 1,989 S 96 T 2,085 BLM 56,367	43	100	0	0	0	0	--	--	--	n/a	n/a	0	8	0	0	--	--	ND	ND	0	0	0	--	--	--	--	--	100	0	No livestock grazing.		
	S 6,887 T 63,254 BLM 159,420 S 23,004 P 160 NRA 23,345 T 205,929	69	0	19	80	1	13	46	46	8	2,420 C 174 S	1,960 C 0 S	952 (958)	205	0	0	6/1-10/31 C 6/1-10/31 S	Same 6/1-10/10	59	46	2,330	231	829 (835)	C 96 S 133	119 ∞	1,558	835	60	79	55	2,780	Yes, in direction only.	
Robbers Roost	BLM 159,420 S 23,004 P 160 NRA 23,345 T 205,929	63	5	27	44	24	8	50	50	0	5,288 C	2,882 C <sup>d</sup>	0	392	31	22	3/1-2/28	Same	ND	NO	6,439	0	0	122	223	--	--	--	--	53	0	A distribution problem.	







TABLE 3-3 (concluded)

ALLOTMENTS	Land Status in Acres	Rangeland (Percent)	Current Ecological Successional Stage of Rangeland (%)				Trend in Range Condition				Active Preference (AUMs)	Average Licensed Use (AUMs)	Current Big Game Use (AUMs)				Adjudicated Livestock Period of Use	Actual Period Used	Average Utilization Key Species Prior to 1976	Average Utilization Key Species Since 1976	Forage Available (AUMs) Based on Inventory			Inventory Based Available Forage as a Percent of Preference		Forage Available (AUMs) Based on Studies <sup>e</sup>		Study Based Available Forage as a Percent of Preference		Current Production % of Natural Potential on Native Rangeland		Acres of Reseeded Rangeland	Studies Support Inventory <sup>f</sup>	
			Climax	Late	Mid	Early	No. Plots	Imp (%)	Stable (%)	Decl. (%)			Bison	Odeer	Antelope	Bighorn Sheep					Cattle	Sheep	Bison	Preference	Average Use	Livestock	Bison	Preference	Average Use	Native Rangeland	Rangeland			
Rockies	BLM 116,391	75	3	11	64	22	9	12	73	15	5,600 C 272 S	3,762 C 128 <sup>c</sup> S	0	69 (75)	0	16	10/1-5/31 C 10/1-5/31 S	10/16-5/31 1/16-2/23	56	NO	3,988	875	0	C 71 S 322	106 684	--	--	--	--	49	0	Insufficient information.		
	S 16,811																																	
	P 263																																	
	NRA 35,573																																	
	T 169,038																																	
Sandy 1	BLM 24,663	71	0	22	73	5	4	25	75	0	927 C 51 S	844 C 0 S	0	33	0	0	10/1-4/15 C 12/1-2/15 S	Same Same	58	NO	656	210	0	C 71 S 412	78 ∞	--	--	--	--	54	0	Yes.		
	S 3,853																																	
	P 1,631																																	
	NP 13,436										282 C	252 C																						
	T 43,583										1,260	1,096																						
Sandy 2	BLM 45,602	76	<1	38	50	12	8	50	38	12	2,228 C	1,257 C	122 (155)	29	0	0	10/16-4/15 C	Same	65	43	707	0	122 (155)	32	56	--	--	--	--	57	196	No. Studies support a higher grazing capacity estimate.		
	S 5,882																																	
	P 2,294																																	
	NP 8,140																																	
	T 61,918																																	
Sandy 3	BLM 4,494	85	0	25	75	<1	4	25	50	25	305 C	271 C	0	12	0	0	10/16-4/15 C	Same	59	NO	301	0	0	99	111	--	--	--	--	56	0	Insufficient information.		
	S 1,590																																	
	P 30																																	
	NP 18,556										680 C	604 C																						
	T 24,670										985	875																						
Sawmill Basin	BLM 9,247	60	0	5	64	31	3	0	67	33	166 C	33 C	146	95	0	0	7/16-8/31 C	Same	52	29	96	0	114	58	291	195	114	117	590	44	397	No. Studies support a higher grazing capacity estimate.		
	S 557																																	
	T 9,804																																	
Sewing Machine	BLM 56,939	63	12	25	57	6	0	--	--	--	1,600 C	998 C	0	167	0	21	11/1-4/15 C	Same	NO	NO	2,646	0	0	165	265	--	--	--	--	61	0	A distribution problem.		
	S 6,983																																	
	NRA 65,394																																	
	T 129,316																																	
So. Caineville Mesa (unallotted area)	BLM 3,805	63	96	0	4	0	0	--	--	--	n/a	n/a	0	12	0	0	--	--	--	--	--	0	0	--	--	--	--	--	--	98	0	No livestock grazing.		
	S 118																																	
	T 3,923																																	
Steele Butte	BLM 74,132	73	3	24	66	7	12	25	50	25	5,034 C	2,672 C	202 (287)	112	0	0	10/16-5/31 C	Same	56	19	1,874	0	202 (296)	37	70	--	--	--	--	56	628	Yes.		
	S 7,173																																	
	P 2,138																																	
	T 83,443																																	
Trachyte	BLM 51,597	78	6	10	49	35	0	--	--	--	2,110 C 743 S	1,542 C 84 S	20	59	0	16	9/1-5/31 C 10/1-5/5 S	11/1-5/31 1/16-4/30	NO	NO	1,164	800	14	C 55 S 107	75 952	--	--	--	--	47	0	Insufficient information.		
	S 5,399																																	
	P 2,401																																	
	T 59,397																																	
Waterpocket	BLM 36,531	73	13	28	41	18	4	0	50	50	2,861 C 304 S	1,715 C 126 <sup>a</sup> S	0	31	0	0	10/1-5/31 C 10/1-5/31 S	11/1-5/31 10/16-11/30	50	NO	2,952	456	0	C 103 S 150	172 362	--	--	--	--	59	0	Trend studies support a lower grazing capacity estimate than indicated by the soil-vegetation inventory.		
	S 3,577																																	
	NP 7,495										164 C 18 S	98 <sup>c</sup> C 7 <sup>c</sup> S																						
	NRA 33,576																																	
	T 81,179										3,347	1,946																						
Wild Horse	BLM 58,501	51	0	20	69	11	0	--	--	--	1,067 C	104 C	0	128	0	0	12/1-6/30 C	Same	NO	NO	1,491	0	0	140	1,434	--	--	--	--	52	0	--		
	S 7,619																																	
	P 40																																	
	T 66,160																																	
TOTALS	BLM 1,312,021							127	29	53	18	50,678 C 5,607 S	30,490 C 458 S																					
	S 172,995																																	
	P 15,536																																	
	NP 126,755																																	
	NRA 265,965											3,538 C 18 S	2,343 C 7 S																					
	T 1,893,272											59,841	33,298																					

Source: Robinson et al., 1982. (See also Appendix 3.)

<sup>a</sup>Based on monitoring and trend studies, supported by the soil-vegetation inventory.

<sup>b</sup>Values shown in ( ) are estimates of AUMs needed by big game animals from BLM-administered lands (as per BLM/UOWR distribution agreement); however, forage is not available to meet all these needs.

<sup>c</sup>Intermittent use.

<sup>d</sup>Plus 100 burros.

<sup>e</sup>Blanks indicate insufficient data available for analysis.

<sup>f</sup>Support criteria (current ecological condition, trend studies, utilization studies, and use records).







The potential of a site to respond to land treatment is easier to evaluate. There have been a number of land treatments on a variety of rangeland sites in the planning area over the past 27 years. Therefore, grazing management and climate variables are known, and vegetation responses may be confidently based on past results.

### Grazing Capacity

Table 3-3 compares estimates of grazing capacities based on rangeland inventories with estimates from animal use records and studies. Although the actual use records and utilization studies are incomplete, it should be noted that, of the 19 allotments having sufficient study records on which to make comparisons, 10 support the soil-vegetation inventory records while two do not. Records of use and/or utilization studies are insufficient to make comparisons on ten allotments. Five areas are unallotted to grazing.

### SOILS

A soils survey was completed in May 1980 (USDI, BLM and Earth Environmental Consultants, Inc., 1980). This survey describes soil texture, depth, slope, permeability, salinity, etc., for each soil series and phase.

Soils vary from desert sand on mesas to clay loam on mountain slopes. A general soils map with a brief description of the 14 soil associations is shown in Figure 3-1.

Erosion condition was determined by measuring soil surface factors (SSFs) during the soil-vegetation inventory. (See Table 3-5 for the percentage and acreage of areas in the five erosion condition classes.) Most of the critical and severe areas are caused by geologic erosion, and not much improvement can be expected in these areas.

The most severe man-caused erosion is related to road construction and overgrazing. These areas occur along Bull Creek in the Hanksville and Sawmill Basin Allotments, the Meadow Gulch headcut in the Hanksville Allotment, and on steep slopes of the Nasty Flat Allotment.

### WATER RESOURCES

The planning area is located in the Upper Colorado River Sub-basin of the Colorado Hydrologic Region and contains 113 streams (many are intermittent). The planning area is divided into four drainage subareas: the Lower Fremont River, the Lower Muddy River, the Dirty Devil River, and direct drainage into the Colorado River.

### Water Quantity

The 113 streams referenced above generally originate on and flow through public lands. Snowmelt in spring and early summer provides most of the runoff for perennial streams with subsurface flow being the major contributor during the rest of the year. A large number of streams are intermittent and flow only for brief periods during snowmelt and high intensity thunderstorms. Estimation of water yield is difficult because a high proportion of runoff results from cloudburst floods and because most areas produce little or no runoff. Average annual water yield is estimated to be 0.14 inch per acre with the range estimated to be from 0.01 to 0.38 inch per acre from public land. There are numerous (over 110) small storage reservoirs on intermittent streams. Many are in need of repair and are located where other surface or groundwater sources are unavailable.

### Water Quality

Water quality is generally good in the upper portions of the streams and decreases downstream as salts accumulate, ground cover diminishes, water temperatures increase, fecal coliform counts from livestock and wildlife increase, and sediment accumulates from runoff of snowmelt (USDI, BLM, 1982a). The sediment yields of the Dirty Devil River and Muddy Creek are high, as their names imply. Most of the sediment discharge by streams in arid and semi-arid regions is transported during short periods, usually as a result of thunderstorms. In general, water quality, relative to its sediment content, is best during periods of low flow; water quality, relative to its chemical content, is best during periods of high flow (Mundorf as cited in Uintex Corporation, 1981). Water quality data were collected at 71 sites by BLM personnel from 1976-80. Additional samples from 106 sites on streams and springs have been provided to BLM under contract with Uintex Corporation. These data cover much of the western portion of the planning area and show a coliform count ranging from 0-360,000/100 milliliters (m/l) and total dissolved solids (TDS) from 115-4,700 milligrams per liter (mg/l). Most streams meet water quality standards for livestock and wildlife.

### Water Use

The primary water use is by livestock and wildlife. Other water uses include mining, irrigation, domestic, and, at times, power generation (USDI, BLM, 1982a).





FIGURE 3-1

SOILS



TABLE 3-5  
Present Erosion Condition

Allotments	Acres and Percent										Unclassified <sup>a</sup> Barren or Rock	
	Stable		Slight		Moderate		Critical		Severe			
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
Blue Bench	1,703	2	40,934	40	42,322	41	610	1	8,474	8	8,581	8
Bullfrog	--	--	25,341	27	63,751	69	2,033	2	--	--	1,699	2
Burr Point	1,326	2	15,422	21	38,242	51	16,069	22	--	--	3,652	4
Cathedral	1,471	1	14,539	11	72,746	56	30,162	23	--	--	11,763	9
Cedar Point	681	1	41,445	71	7,113	12	5,011	9	--	--	3,772	7
Crescent Creek	1,890	19	3,647	38	2,254	23	784	8	--	--	1,128	12
Dry Lakes	428	4	8,030	74	1,039	10	--	--	--	--	1,272	12
Flint Trail	290	1	40,818	35	48,726	42	--	--	--	--	25,555	22
Hanksville	1,572	1	20,410	23	53,069	59	9,049	10	2,850	3	3,704	4
Hartnet	--	--	9,666	10	15,431	16	431	1	--	--	68,176	73
Little Rockies	6,123	9	55,700	82	3,194	5	--	--	--	--	2,673	4
Nasty Flat	74	1	7,499	43	7,576	44	1,217	7	--	--	975	5
North Bench	--	--	1,926	8	20,913	82	--	--	--	--	2,622	10
Pennell	6,325	10	37,320	59	13,283	21	1,898	3	--	--	4,428	7
Robbers Roost	2,448	1	48,280	23	87,063	42	67,359	33	--	--	779	1
Rockies	2,242	2	60,881	36	62,550	37	24,568	15	1,316	1	17,481	10
Sandy 1	--	--	4,787	11	7,753	18	17,425	40	--	--	13,618	31
Sandy 2	--	--	8,669	14	24,767	40	27,244	44	--	--	1,238	2
Sandy 3	--	--	913	4	4,487	18	367	1	--	--	18,903	77
Sawmill Basin	392	4	5,589	57	3,235	33	--	--	--	--	588	6
Sewing Machine	--	--	38,841	30	38,862	30	25,543	20	--	--	26,070	20
Steele Butte	1,536	2	13,589	16	43,957	53	9,026	11	--	--	15,335	18
Trachyte	5,642	10	21,895	37	25,384	43	4,935	8	--	--	1,541	2
Waterpocket	816	1	28,842	35	40,436	50	457	1	--	--	10,628	13
Wild Horse	--	--	19,983	30	24,980	38	10,025	15	--	--	11,172	17
Total <sup>b</sup>	34,959	2	574,966	30	753,133	40	254,213	13	12,640	1	257,353	14

Source: USDI, BLM, 1982a.

<sup>a</sup>Unclassified includes lands in Capitol Reef National Park.

<sup>b</sup>Does not include North and South Caineville Mesas (6,008 acres).



## ANIMAL LIFE

### Mule Deer

Deer herd unit 52 (Henry Mountains) and portions of herd units 45 (Last Chance), 46 (Thousand Lake Mountain), 29 (San Rafael), and 51A (Boulder) are located in the planning area (Figure 3-2). The only crucial deer range is located within the boundary of herd unit 52. Crucial mule deer summer and winter ranges are shown in Figure 3-2.

There are approximately 70,715 acres of crucial summer deer range. Distribution of these acres is shown by allotment in Table 3-6. Based on inventory data, approximately 10,762 acres (15 percent) of this range are in good ecological condition while 54,211 (77 percent) and 5,574 (8 percent) acres are in fair and poor condition, respectively (see Table 3-3). Only about 168 acres are considered in excellent condition.

There are approximately 41,472 acres of crucial winter deer range. Distribution of these acres is shown by allotment in Table 3-6. Based on inventory data, approximately 8,354 acres (20 percent) are in good ecological condition, while 28,265 (69 percent) and 3,903 acres (9 percent) are in fair and poor condition, respectively. Only 950 acres are considered in excellent condition.

Estimates of deer numbers and required AUMs on crucial summer and winter ranges are shown by allotment in Table 3-7. These estimates are based on actual inventory data as well as long-term population numbers determined from pellet group transects, browse utilization and trend studies, and hunter harvest information (Utah Division of Wildlife Resources [UDWR], 1981a and 1981c).

### Bison

Crucial bison range and herd unit boundaries are shown in Figure 3-3. There are approximately 83,222 and 32,703 acres of crucial bison summer and winter ranges, respectively. In addition, there are approximately 23,245 acres of crucial yearlong bison range. The distribution of crucial bison range is shown by allotment in Table 3-8. In general, this range is in fair ecological condition.

The estimated population of bison is 200 mature animals and 90 calves and yearlings (Felthousen, 1981). This estimate is based on data collected by Van Vuren (1979a; 1979b) and Nelson (1965) as well as aerial and ground survey trend data collected by UDWR (1981b). These data also suggest that, since 1964, the Henry Mountain bison herd has increased at an average annual rate of 9 percent. The estimated seasonal distribution of bison is shown by allotment in Table 3-9.



Bison from the Henry Mountain herd.

### Pronghorn Antelope

A portion of antelope herd unit 9 (San Rafael) is located in the planning area (Figure 3-4). There are approximately 381,000 acres of yearlong antelope range on the planning area. This range is distributed as follows:

Allotment	Acres
Blue Bench	25,088
Burr Point	49,504
Cedar Point	30,592
Hanksville	85,632
North Bench	370
Robbers Roost	64,089
Rockies	32,544
Trachyte	14,003
Waterpocket	12,281
Wild Horse	3,975
Unallotted	63,469
Total	381,597

The only crucial antelope habitat is fawning grounds near water sources. In general, this range is in fair ecological condition.

Actual census data for antelope are not available. However, small herds have been observed on the Blue Bench, Wild Horse, Hanksville, Burr Point, Trachyte, Robbers Roost, and Cedar Point Allotments and the Little Rockies unallotted area. Estimates of antelope numbers are shown in Table 3-10. The current population trend is considered stable (UDWR, 1981c).



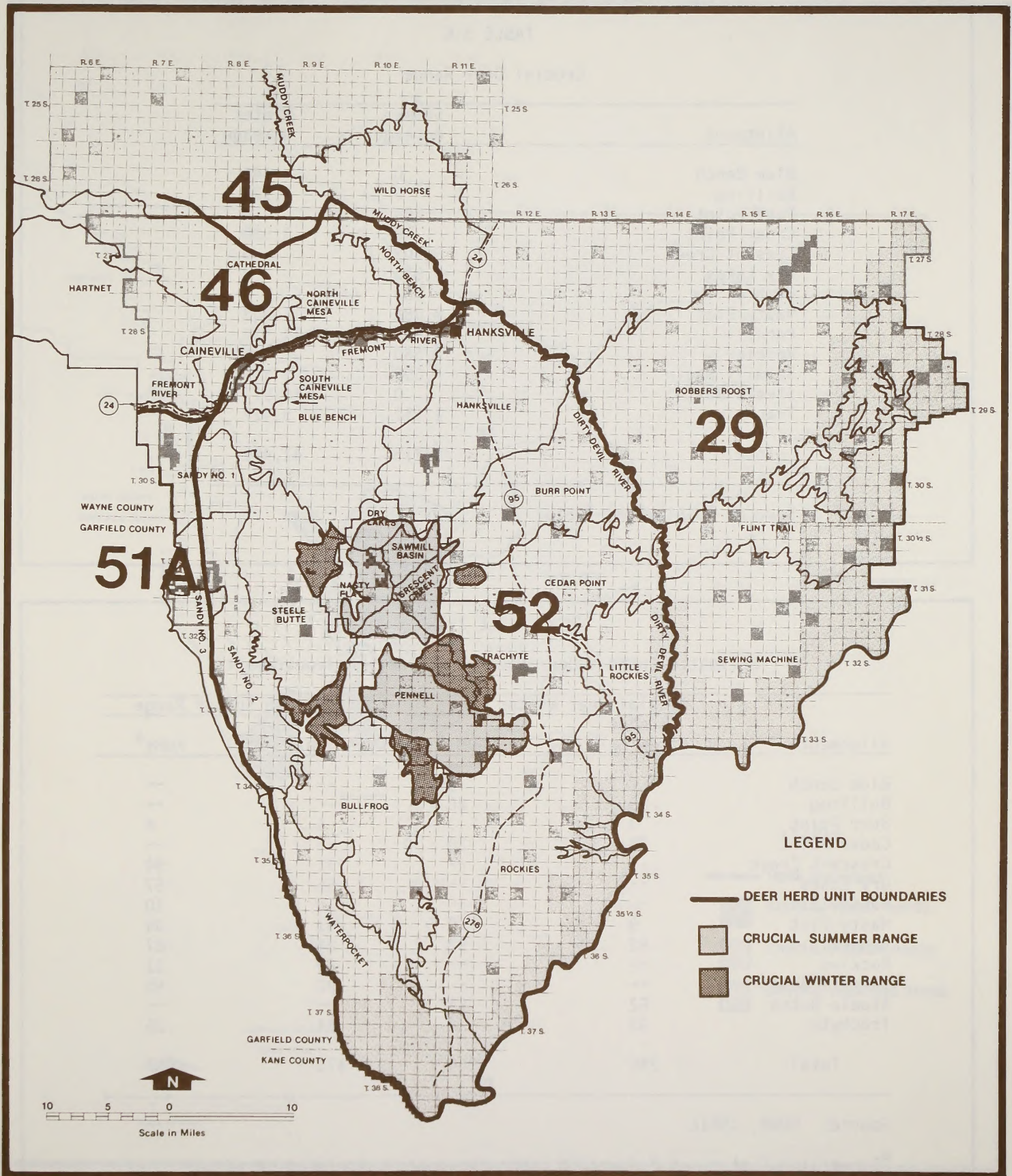


FIGURE 3-2  
DEER HERD UNIT BOUNDARIES AND CRUCIAL RANGES



# CHAP. 3 — AFFECTED ENVIRONMENT

TABLE 3-6

## Crucial Deer Range

Allotment	Summer Acreage	Winter Acreage
Blue Bench	0	448
Bullfrog	0	3,175
Burr Point	608	0
Cedar Point	0	3,520
Crescent Creek	8,403	0
Dry Lakes	4,915	0
Hanksville	253	0
Nasty Flat	8,082	403
Pennell	37,369	14,522
Rockies	2,560	0
Sawmill Basin	7,008	0
Steele Butte	0	13,977
Trachyte	1,517	5,427
Total	70,715	41,472

Source: USDI, BLM, 1981a.

TABLE 3-7

## Estimated Current Deer Numbers and Forage Requirements

Allotment	Crucial Deer Winter Range		Crucial Deer Summer Range	
	Number of Animals	AUMs <sup>a</sup>	Number of Animals	AUMs <sup>a</sup>
Blue Bench	2	2	--	--
Bullfrog	19	20	--	--
Burr Point	3	3	4	4
Cedar Point	29	30	--	--
Crescent Creek	--	--	91	94
Dry Lakes	--	--	55	57
Hanksville	--	--	10	10
Nasty Flat	9	9	91	94
Pennell	89	92	84	87
Rockies	--	--	20	21
Sawmill Basin	--	--	92	95
Steele Butte	62	64	--	--
Trachyte	33	34	24	25
Total	246	254	471	487

Source: UDWR, 1981c.

<sup>a</sup>Conversion factor: 5.8 deer/AUM (AUMs shown are calculated based on number of animals shown).

<sup>b</sup>Unallotted area.



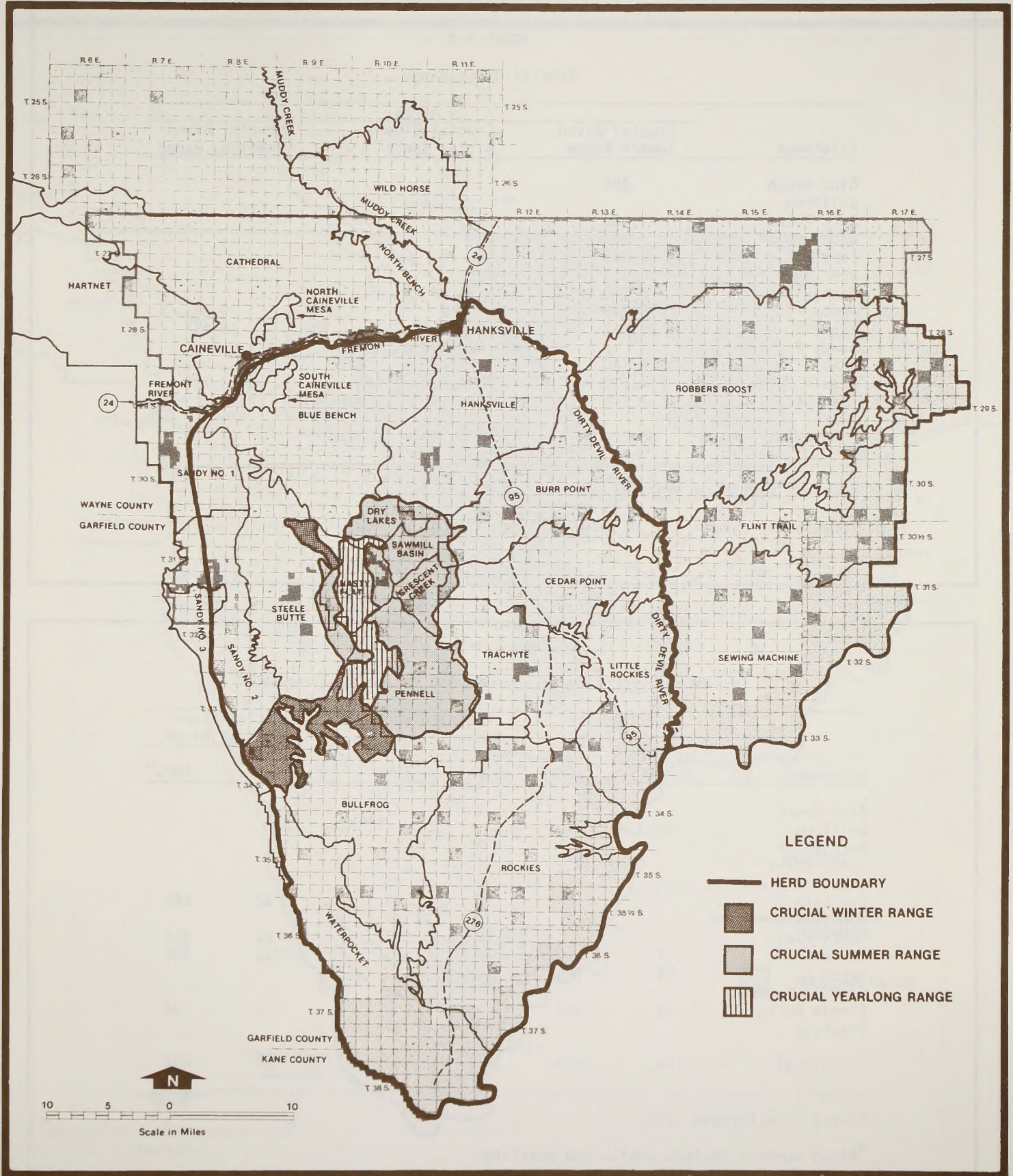


FIGURE 3-3  
BISON HERD BOUNDARY AND CRUCIAL RANGE



# CHAP. 3 — AFFECTED ENVIRONMENT

TABLE 3-8

## Crucial Bison Range

Allotment	Acres		
	Crucial Bison Summer Range	Crucial Bison Winter Range	Crucial Bison Yearlong Range
Blue Bench	890		
Bullfrog		3,564	
Burr Point	1,660		
Cedar Point	787		
Crescent Creek	8,832		
Dry Lakes <sup>a</sup>	10,163		
Hanksville	2,160		
Nasty Flat	8,253		9,088
Pennell	35,162	1,426	10,048
Sandy 2		13,075	
Sawmill Basin	9,540		
Steele Butte	4,530	14,638	3,129
Trachyte	1,245		
Total	83,222	32,703	23,245

Source: USDI, BLM, 1981a.

<sup>a</sup>Unallotted area.

TABLE 3-9

## Estimated Current Bison Numbers and Forage Requirements<sup>a</sup>

Allotment	Crucial Bison Winter Range		Crucial Bison Summer Range		Crucial Bison Yearlong Range	
	No. of Animals	AUMs <sup>b</sup>	No. of Animals	AUMs <sup>b</sup>	No. of Animals	AUMs <sup>b</sup>
Blue Bench			2	17		
Bullfrog	14	49				
Burr Point			2	17		
Cedar Point			2	17		
Crescent Creek			10	85		
Dry Lakes <sup>c</sup>			8	68	12	144
Hanksville			2	17		
Nasty Flat			62	527	21	252
Pennell	4	14	78	663	32	384
Sandy 2	54	189	2	17		
Sawmill Basin			17	145		
Steele Butte	92	322	2	17	2	24
Trachyte			2	17		
Total	164	574	189	1,607	67	804

Source: Felthousen, 1981.

<sup>a</sup>Bison numbers include adults and yearlings.

<sup>b</sup>Conversion factor: 1 bison/AUM (AUMs shown are calculated based on number of animals shown).

<sup>c</sup>Unallotted area.



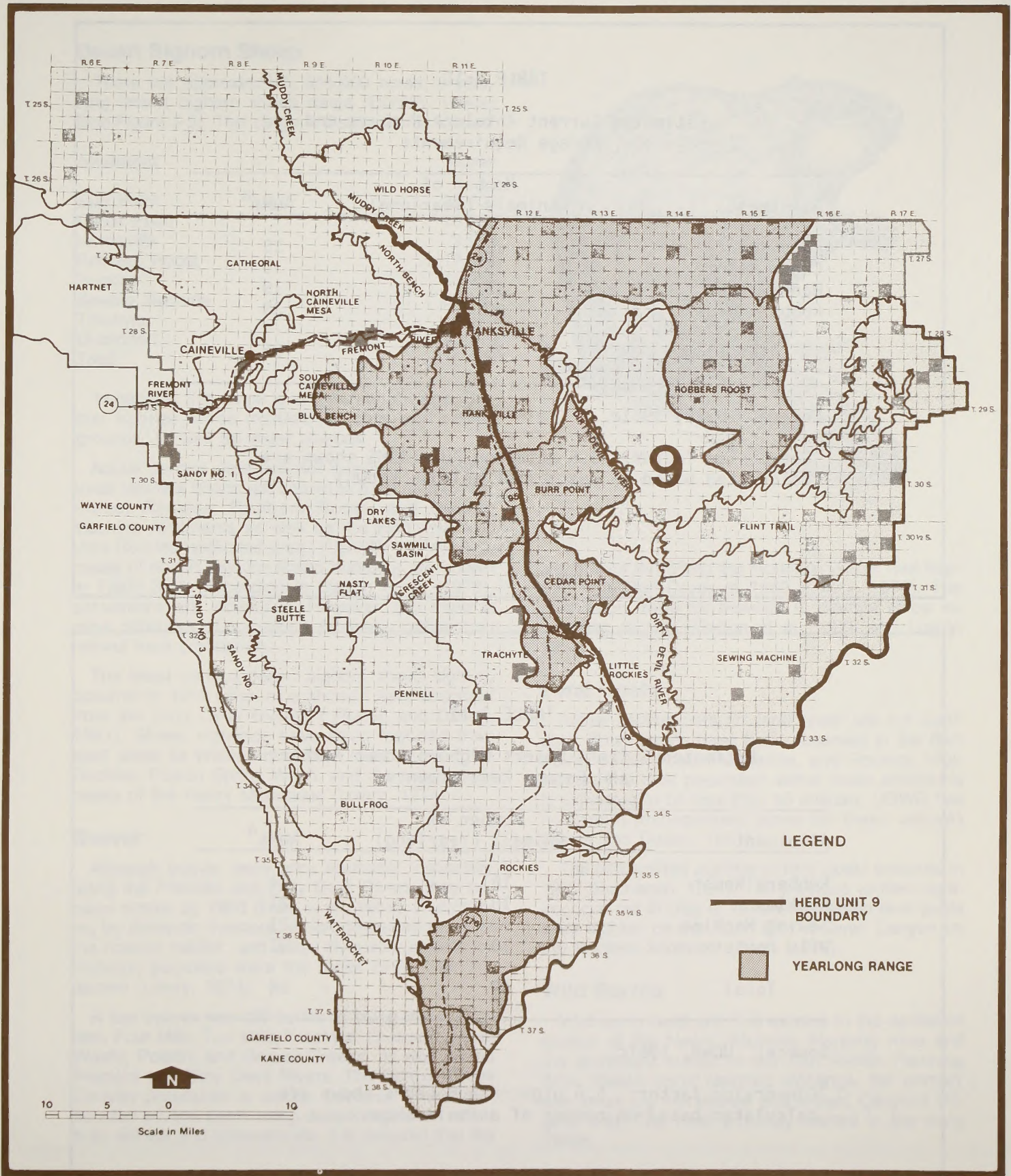


FIGURE 3-4  
ANTELOPE HERD BOUNDARY AND YEARLONG RANGE



TABLE 3-10

Estimated Current Antelope Numbers and  
Forage Requirements

Allotment	Number of Animals (Yearlong)	AUMs <sup>a</sup>
Burr Point	15	19
Cedar Point	15	19
Hanksville	15	19
Robbers Roost	30	38
Total	75	95

Source: UDWR, 1981c.

<sup>a</sup>Conversion factor: 9.6 antelope/AUM (AUMs shown are calculated based on numbers of animals shown).

TABLE 3-11

Estimated Current Desert Bighorn Sheep Numbers  
and Forage Requirements

Allotment	Number of Animals (Yearlong)	AUMs <sup>a</sup>
Robbers Roost	10	21
Rockies	10	21
Sewing Machine	10	21
Wild Horse	10	21
Total	40	84

Source: UDWR, 1981c.

<sup>a</sup>Conversion factor: 5.6 bighorn/AUM (AUMs shown are calculated based on number of animals shown).



## Desert Bighorn Sheep

There are approximately 515,000 acres of year-long desert bighorn sheep range (UDWR, 1980a) (see Figure 3-5). This range is distributed as follows:

Allotment	Acres
Burr Point	25,709
Cedar Point	18,900
Hanksville	2,976
Robbers Roost	117,984
Rockies	73,280
Sewing Machine	81,183
Trachyte	4,589
Unallotted	190,519
Total	515,140

In general, this range is in a mid-seral stage. Crucial habitat areas include lambing and rutting grounds, as well as water sources.

Actual census data are not available. However, small remnant bands are known to exist on the Wild Horse, Rockies, Robbers Roost, and Sewing Machine Allotments as well as the Flint Trail and Little Rockies unallotted areas (UDWR, 1981c). Estimates of desert bighorn sheep numbers are shown in Table 3-11. According to Dalton et al. (1978), populations are increasing. However, this trend is more reflective of transplant programs rather than natural herd productivity.

The latest verified desert bighorn sheep sighting occurred in 1979 when nine animals were observed from the Dirty Devil Overlook (Bates and Dalton, 1981). Sheep sightings have been reported from such areas as Waterpocket Fold, Halls Creek, Little Rockies, Poison Spring Wash, and the two highest peaks of the Henry Mountains (Lowry, 1974).

## Beaver

Although beaver were once abundant, especially along the Fremont and Dirty Devil Rivers, they became scarce by 1900 (Hunt et al., 1953). Overgrazing by domestic livestock, which destroyed much of the riparian habitat, and water diversion projects for irrigation purposes were the major causes for the decline (Lowry, 1974).

A few beaver may still be found along Halls, Tica-boo, Four Mile, Two Mile, Trachyte, Crescent (North Wash), Poison, and Beaver Creeks, as well as the Fremont and Dirty Devil Rivers. The Beaver Creek Canyon population is unique because it has constructed several dams using desert vegetation rather than willows and cottonwoods. It is believed that the



last beaver inhabiting the mountain proper was trapped from Bull Creek in 1963 (Lowry, 1974). The population trend for beavers is thought to be increasing slightly (Dalton et al., 1978 and Lowry, 1974).

## Feral Goats

Actual census data for feral goats are not available. Small bands have been observed in the Burr Point, Cedar Point, Hanksville, and Rockies Allotments. The total population within these allotments is estimated to be less than 50 animals. UDWR has no formal management plans for these animals (Bates and Dalton, 1981).

The last verified sighting of feral goats occurred in 1977 (Buchanan, 1981). The previous verified sighting occurred in May of 1976 when seven feral goats were sighted on the North Rim of Swett Canyon on the Rockies Allotment (Boos, 1976).

## Wild Burros

Wild burro herd unit 5 is located in the northeast section of the Henry Mountain Planning Area and the southeast corner of the San Rafael Planning Area. Based upon reported sightings, the primary use areas are Horseshoe and Millard Canyons (Figure 3-6). The herd probably started in the early 1940s.



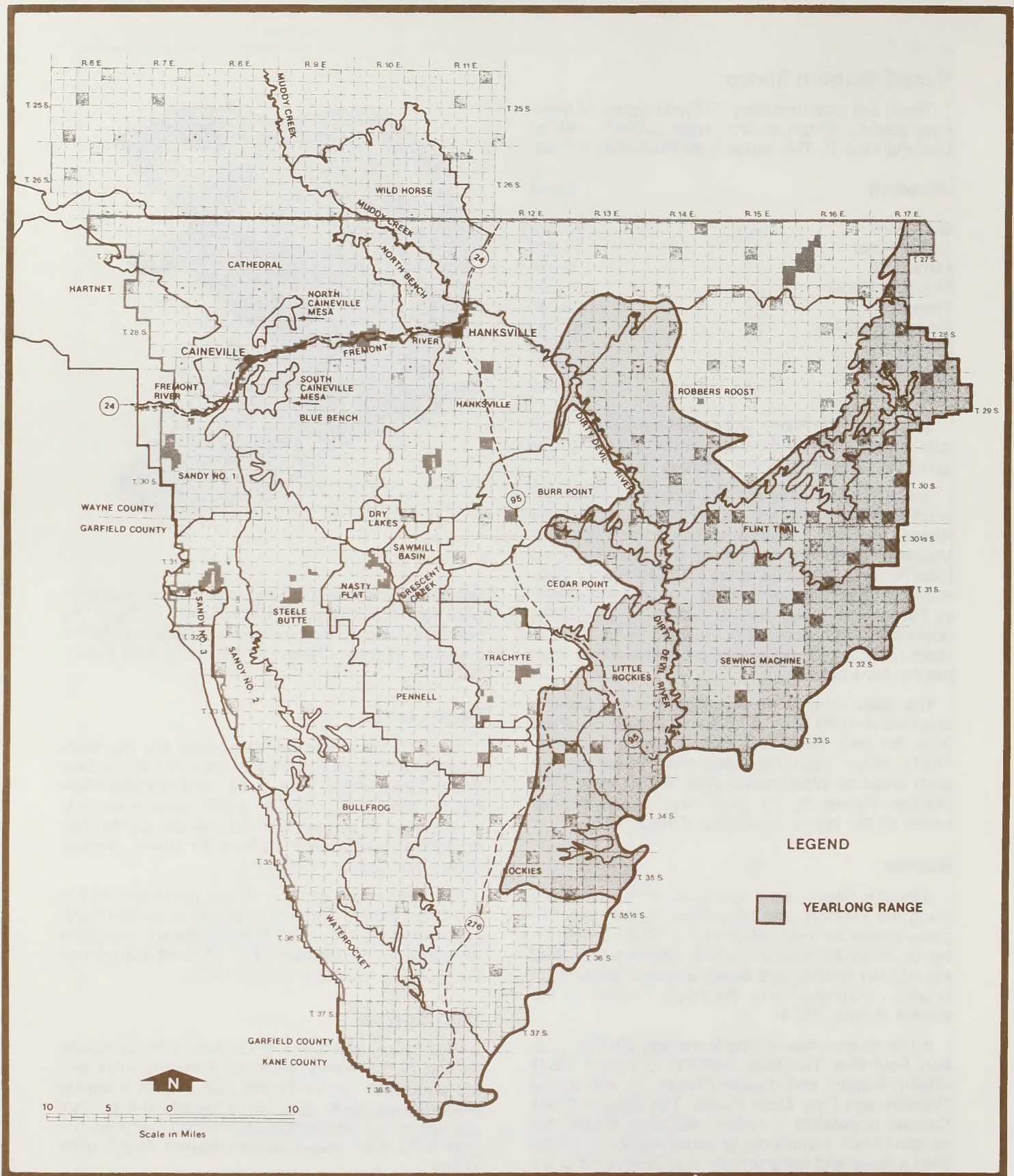


FIGURE 3-5  
DESERT BIGHORN SHEEP YEARLONG RANGE



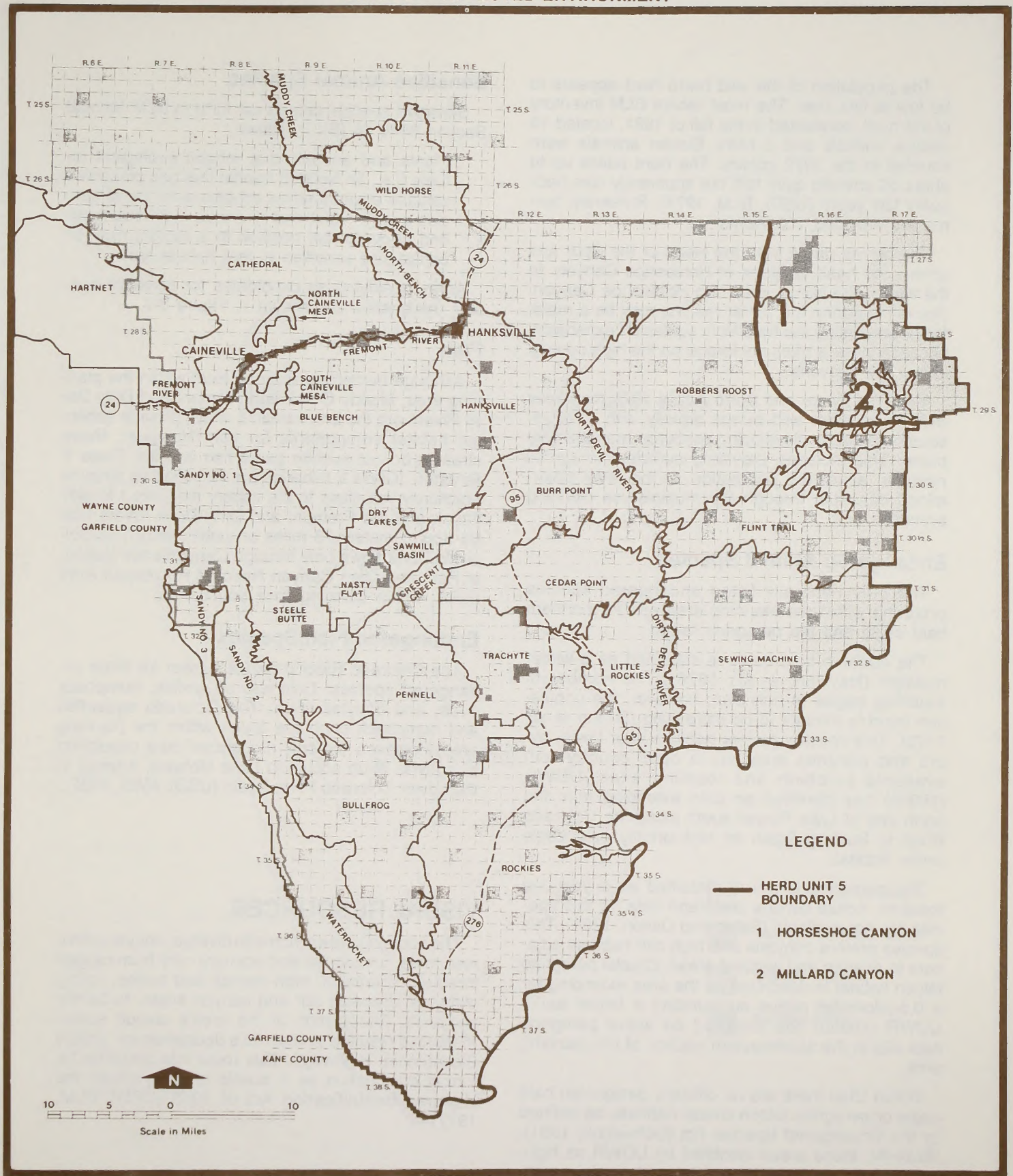


FIGURE 3-6  
WILD BURRO HERD BOUNDARY AND GENERAL LOCATIONS



The population of the wild burro herd appears to be low at this time. The most recent BLM inventory of the herd, conducted in the fall of 1981, located 16 mature animals and 3 colts. Eleven animals were counted in the 1972 survey. The herd builds up to about 35 animals quite fast but apparently dies back every few years (USDI, BLM, 1974). Presently, burros are provided 100 AUMs.

The burros range from the Head of the Spur and across the head canyons of Horseshoe Canyon. In the winter, the burros drop into Horseshoe Canyon. Starvation during the winter months may be a major factor preventing the herd from sustained expansion, because there is plenty of forage on the high country above the canyons.

The Wild Horse and Burro Act of 1971 mandates BLM to consider wild burros equally with other resource values in developing resource management plans. This includes providing sufficient forage to maintain a healthy population at the level determined desirable through the multiple-use planning system.

### Endangered Animal Species

The only Federally listed endangered species occurring within the planning area are the northern bald eagle and the peregrine falcon.

The northern bald eagle is classified as a winter resident (Hayward et al., 1976). The number of wintering eagles is unknown; however, the population trend is thought to be increasing (Dalton et al., 1978). This species prefers habitats near lakes, rivers and marshes adjacent to open country with available perching and roosting sites. UDWR (1980b) has identified an area extending from the north end of Lake Powell south along the Colorado River to Bullfrog Basin as high-priority bald eagle winter habitat.

The peregrine falcon is classified as a yearlong resident. Actual census and trend data for this species are not available (Bates and Dalton, 1981). This species prefers canyons and high cliff habitats adjacent to riparian and wetland areas. Crucial peregrine falcon habitat is described as the area extending for a 0.5-kilometer radius surrounding a falcon aerie. UDWR (1980b) has identified an active peregrine nest site in the southeastern section of the planning area.

Within Utah there are no officially designated bald eagle or peregrine falcon critical habitats, as defined by the Endangered Species Act (Bohwahnn, 1981). However, those areas identified by UDWR as high-priority bald eagle winter habitat and crucial peregrine falcon nesting habitat are considered as essential for maintenance of these species.

### Sensitive Animal Species

Sensitive species criteria set forth in BLM Manual Section 6840.34 (B)(5), states:

Plants and animals that inhabit ecological refugia (i.e., an isolated habitat that has preserved suitable environmental conditions for those species adapted to it and is unique in its ecological and geographical position in a region) may be considered sensitive in that habitat type.

Areas qualifying as candidates for sensitive species designation are shown in Figure 3-7.

### Fish

Although numerous streams exist within the planning area, Muddy Creek and Fremont and Dirty Devil Rivers are the only streams which provide essential habitat components for fish. However, these streams do not sustain game fish and are Class V fisheries. (Class V fisheries are identified as streams practically valueless to the fishery resource.) Muddy Creek and the Fremont and Dirty Devil Rivers flow for approximately 73 miles on public land. The Colorado River flows only through Canyonlands National Park and Glen Canyon National Recreation Area (NRA) within planning area boundaries.

### Endangered Fish Species

The Colorado River provides habitat for three endangered species: Colorado squawfish, humpback chub, and bonytail chub. The Colorado squawfish and humpback chub are found within the planning area. However, the only recognized pure population of bonytail chub occurs in Lake Mohave, Arizona in the Lower Colorado River Basin (USDI, FWS, 1982).

## VISUAL RESOURCES

The planning area is rich with diverse, unique scenic resources. Landforms and scenery vary from rugged forested mountains, high mesas and buttes, rolling plateaus, dramatic cliff and canyon areas, to barren badlands. Recognition of the area's unique scenic resources resulted in Utah 95's dedication as "Utah's Bicentennial Highway". This route has potential for formal designation as a scenic highway under the Highway Beautification Act of 1965 (USDI, BLM, 1977).



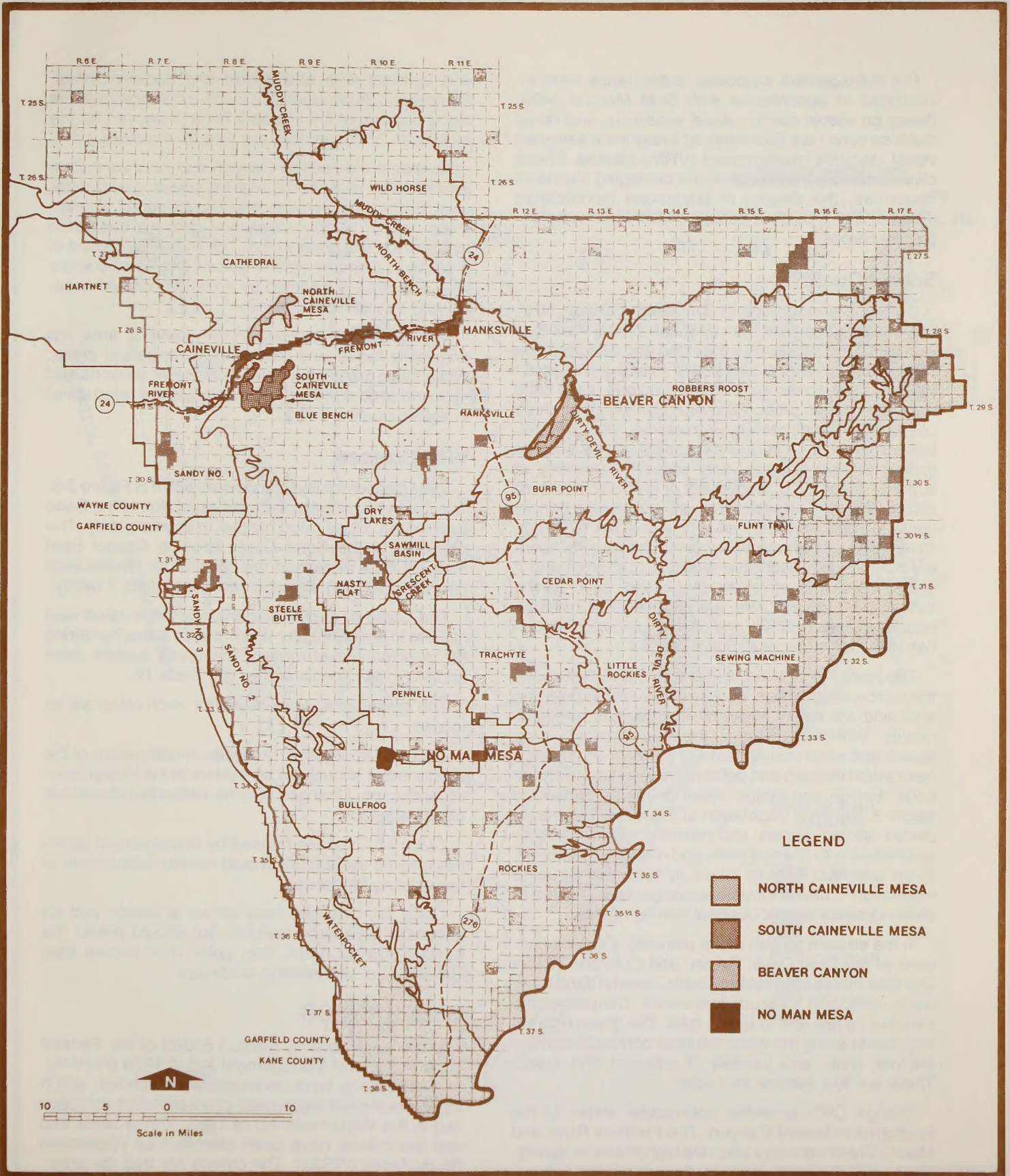


FIGURE 3-7  
SENSITIVE PLANT AND ANIMAL SPECIES HABITATS



For management purposes, public lands were inventoried in accordance with BLM Manual 8400. Based on scenic quality, visual sensitivity, and visual distance zone (see Glossary), all areas were assigned visual resource management (VRM) classes. These classes specify the objectives for managing the visual resources, the degree of landscape modification allowed, and provide a basis for BLM land use planning decisions.

### Scenic Quality

During development of the Glen Canyon NRA General Management Plan (USDI, National Park Service [NPS], 1979), lands were rated and assigned one of four scenic value classes (see Figure 3-8). Class I (outstanding) areas, such as the canyons of the Little Rockies, contain unique superior scenery (e.g., deep canyons, unique geologic structures, and colorful, carved landscapes). Class II (superior) areas, such as the Dirty Devil Canyon, may contain a property of superior quality (e.g., immensity or diversity in form or color). Class III (interesting) areas, such as the benchlands located northeast of Hite along the Colorado River, lend considerable interest to the general scenery but lack the distinctive qualities of Class I and II areas. Class IV (unremarkable) areas, such as the flats above Orange Cliffs, are relatively flat, monotonous expanses of shrub and pinyon-juniper communities with low landscape qualities.

The Henry Mountains, rising over 6,000 feet above the surrounding desert, visually dominate the planning area and are the BLM lands rated highest in scenic quality. Within this range, there are several large basins and seven major peaks of volcanic origin which have thrust through and deformed the sandstone rockbeds. Pinyon and juniper trees dominate elevations below 8,000 feet. Vegetation at higher elevations includes spruce, aspen, and mixed conifer forests interspersed with grass slopes and meadows. Atop Mt. Ellen and Mt. Pennell there is tundra-like alpine vegetation. Cultural intrusions are generally limited to chained areas and occasional mining cabins.

In the eastern portion of the planning area, the canyons of the Dirty Devil, Green, and Colorado Rivers and their tributaries present scenic, colorful sandstone walls, cliffs, and slickrock formations. Canyon widths vary from a few feet to over 1 mile. The green riparian vegetation along the water courses contrasts with the browns, reds, and yellows of adjacent arid areas. There are few cultural intrusions.

Orange Cliffs provides spectacular vistas of the landforms in Millard Canyon. The Fremont River and Muddy Creek corridors also rate high in scenic quality. Here also, the water and riparian vegetation dissect

and contrast with arid desert and badland areas. Some agriculture-related cultural modifications exist along portions of the Fremont River; however, for the most part, both corridors are free of intrusions.

Northeast Horseshoe Canyon and northwest Blue Hills are also rated in the highest scenic quality category. Horseshoe Canyon consists of a series of deep, steep-walled, colorful sandstone canyons separated by slickrock and grassy flats. The Blue Hills consist of a series of uniquely eroded barren grey to blue shale hills. The area is bisected by a creek bordered occasionally by riparian vegetation.

The remaining portions of the planning area are principally bench and mesa desert rangeland areas. While these areas offer numerous scenic canyons and rock and sand dune formations, they were rated lower in scenic quality.

### VRM Classes

VRM classes for BLM lands are shown in Figure 3-8. The Class II areas are, with the exception of the Sand Creek area, those rated highest in scenic quality. The proximity of the Sand Creek area to Capitol Reef National Park increased the concern for modification (visual sensitivity) and resulted in its Class II rating.

The Class III areas are generally those rated next highest in scenic quality and/or those areas bordering the principal travel routes. The areas seldom seen and/or of less scenic quality are Class IV.

The management objectives for each class are as follows:

*Class II.* Management activities/modifications of the environment should not be evident in the characteristic landscape. Changes may be visible but should not attract attention.

*Class III.* Changes caused by management activities may be evident but should remain subordinate to the existing landscape.

*Class IV.* Changes may attract attention and be dominant landscape features but should reflect the basic elements (form, line, color, and texture [see Glossary]) of the existing landscape.

### WILDERNESS

Under provisions of Section 603(c) of the Federal Land Policy and Management Act of 1976 (FLPMA), all public lands were inventoried to ascertain which lands possessed wilderness characteristics as specified in the Wilderness Act of 1964. Those lands that met the criteria have been identified as Wilderness Study Areas (WSAs). The criteria are that the area:



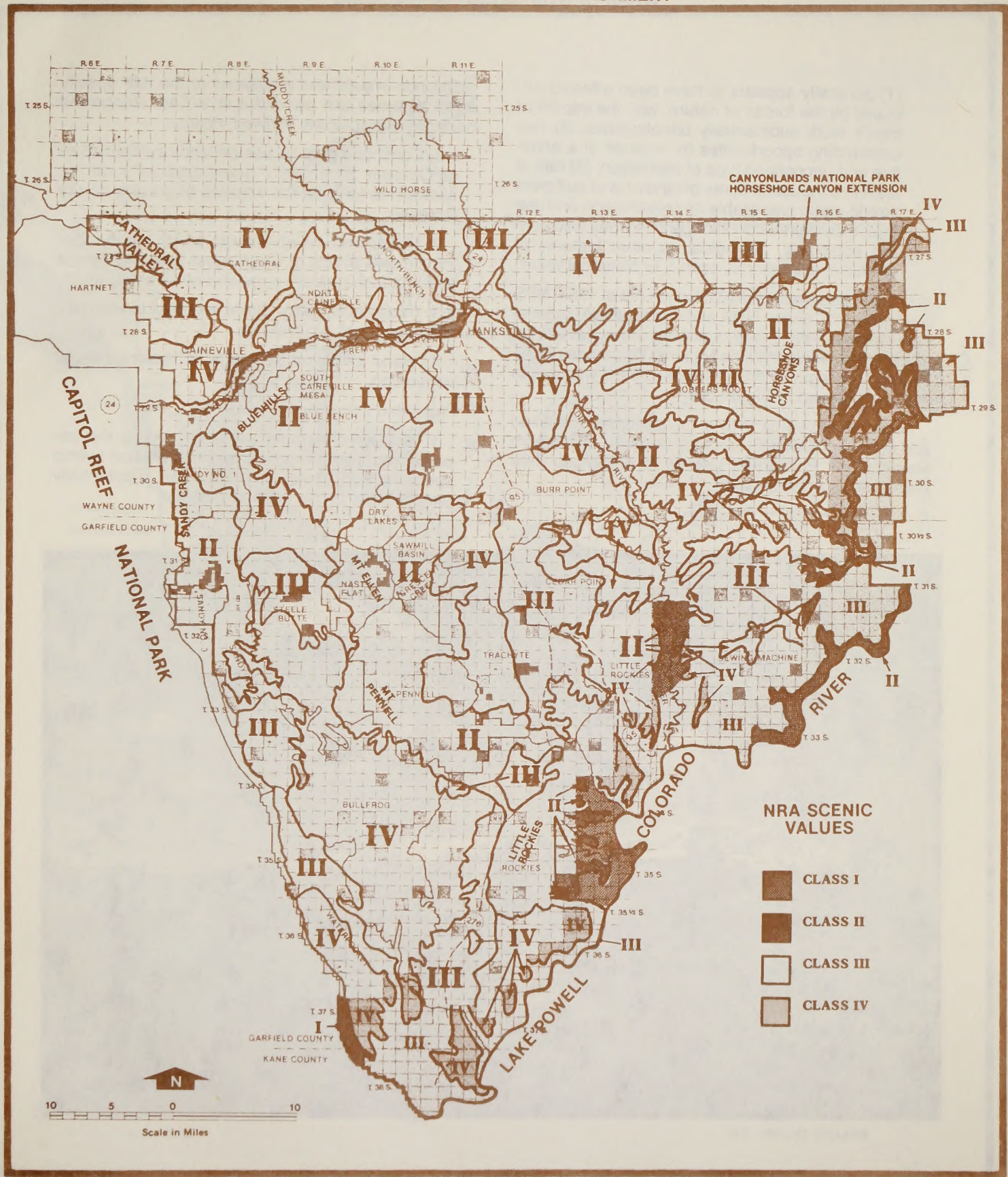


FIGURE 3-8  
BLM VISUAL RESOURCE MANAGEMENT CLASSES  
AND NPS SCENIC VALUES



(1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

In accordance with the Wilderness Act of 1964, NPS lands in Glen Canyon NRA and Capitol Reef National Park were surveyed, and qualifying areas have been proposed for addition to the National Wilderness Preservation System (NPWS). Proposed NPS wilderness areas are shown in Figure 3-9.

Areas identified as WSAs (or areas not identified and under appeal) are managed under BLM's Interim Management Policy (IMP) so as to not impair their suitability for preservation.

The non-impairment provisions of the IMP specify which activities are permitted in WSAs. Rangeland management activities allowed include:

1. Continued grazing use on lands authorized as of October 21, 1976 ("grandfathered") will be allowed as long as the impacts of grazing do not increase.
2. Rangeland improvements which satisfy non-impairment criteria or which meet specified criteria and enhance natural rangeland wilderness values.
3. Prescribed burns where required to maintain fire-dependent ecosystems.
4. Hand or aerial seedings to restore natural vegetation.

Prohibited activities include:

1. Surface-disturbing activities, unless the impacts would be temporary and reclamation (within specified time limits) to a condition substantially unnoticeable in the WSA is possible.



The west side of the Henry Mountains from Notom Road.





FIGURE 3-9  
BLM WILDERNESS STUDY AREAS AND  
NPS PROPOSED AND POTENTIAL WILDERNESS



2. Land treatment by mechanical, chemical, or biological means (except to maintain plantings or seedings conducted before October 21, 1976).

The wilderness study phase, now in progress, will determine the suitability of each area for addition to the NWPS. In Utah, study findings for all WSAs on public lands will be published in one environmental impact statement (EIS). That EIS is scheduled for completion during 1984. Based on the findings and public comments, the BLM State Director will make recommendations on each WSA. Congress will decide which WSAs will be designated for addition to the NWPS.

The unique and pristine character of lands in the planning area resulted in ten areas qualifying for wilderness study in addition to NPS proposed wilderness areas in Glen Canyon NRA and Capitol Reef National Park. The WSAs and proposed wilderness areas include portions (from approximately 5 to 100 percent) of 15 of the 22 allotments and three unallotted areas in the planning area.

Figure 3-9 shows WSA locations and identifies the areas under appeal, also managed under the IMP. The WSAs are:

*Crack Canyon WSA* (060-028A), containing 25,315 acres, 17,180 of which are within Wild Horse Allotment, lies northeast of Muddy Creek in Emery County. The WSA is a portion of the San Rafael Reef and its canyons; Crack Canyon is the major canyon which cuts through this portion of the Reef.

*Dirty Devil WSA* consists of two units (050-236A and 236B). Unit A contains 61,000 acres in portions of the Dirty Devil River Canyon, Robbers Roost Canyon, No Man's Canyon, and Sam's Mesa Box. Unit B contains 25,000 acres in portions of Happy and French Springs Canyons. These units contain over 100 miles of deep, colorful slickrock canyons. They occupy portions of Robbers Roost, Burr Point, and Hanksville Allotments and Flint Trail unallotted area.

*Horseshoe Canyon WSA* (050-237) contains 38,000 acres, most of which borders the Glen Canyon NRA in the northeast corner of Robbers Roost Allotment. The area offers deep, slickrock canyons separated by sparsely vegetated tables and mesas.

*Mt. Ellen WSA* (050-238) contains 58,480 acres which includes Dry Lakes unallotted area and portions of Blue Bench, Nasty Flat, Sawmill Basin, and Steele Butte Allotments. There is a wide variety in topography, vegetation, and life zones in the area. Mt. Ellen (11,615-foot elevation) dominates the area. The Blue Hills, a vast, uniquely eroded, barren Mancos shale badlands, forms the northern portion of the area. Exclusion of some surrounding areas, including three large mesas, has been appealed. This resulted in IMP management of the entire inventory unit (156,000 acres).

*Fiddler Butte WSA* (050-241) contains 27,000 acres, the majority of which are located in the Little Rockies unallotted area. The WSA contains large areas of slickrock canyons. The exclusion of some areas from the WSA was protested and appealed, resulting in IMP management of the 101,310-acre inventory unit, which includes most of Cedar Point and Sewing Machine Allotments.

*Bull Mountain WSA* (050-242) contains 11,800 acres in Burr Point, Crescent Creek, Hanksville, and Sawmill Basin Allotments. Bull Mountain (9,187-foot elevation) offers areas forested with ponderosa pine and mixed conifers.

*Little Rockies WSA* (050-247) contains 38,700 acres, the majority of which are located in Rockies Allotment. This WSA borders the Glen Canyon NRA and contains the Little Rockies: Mt. Ellsworth and Mt. Holmes. These mountains have rugged slopes on the west and massive slickrock formations and canyons on the east. The area was designated a National Natural Landmark in 1975.

*Mt. Pennell WSA* (050-248), dominated by Mt. Pennell, contains 27,300 acres, mostly in Pennell Allotment. The area contains a diversity of landforms and vegetation. Exclusion of portions of the Mt. Pennell inventory unit from the WSA has been appealed; therefore, the entire 159,650-acre unit is under IMP management. The areas under appeal include the majority of Bullfrog, Sandy 2, and Steele Butte Allotments.

*Mt. Hillers WSA* (050-249) contains 20,000 acres, most of which is in Pennell Allotment. The mountain, formed by igneous intrusion through the sedimentary bedrock, has steep, rugged slopes cut by several drainages and a diversity of vegetation.

Total WSA acreage in the planning area is 325,260. Areas under appeal total 304,180 acres. Thus, the total area under IMP management is 629,440 acres or 48 percent of the public lands. Those allotments and unallotted areas containing WSAs and/or appeal areas and Glen Canyon NRA proposed and potential wilderness additions are identified in Table 3-12 and on Figure 3-9.

The Glen Canyon NRA and Capitol Reef National Park proposed wilderness areas include lands which are scenically outstanding, relatively undisturbed, isolated, and remote from the activities of man, or bordering areas with complimentary land-use practices. Potential wilderness additions are areas that presently have nonconforming conditions or uses. Once those conditions or uses are terminated, the additions will be proposed for wilderness designation. Management of these areas generally conforms to the BLM's IMP to protect the wilderness values present.



The proposed and potential wilderness additions include Waterpocket Fold, canyons of the Little Rockies, Dirty Devil and Cataract Canyons, and the canyon country bordering Canyonlands National Park.

In NPS proposed and potential additional wilderness, use of motorized vehicles is prohibited unless use constitutes a "minimum management tool." Also, grazing management facilities and practices are limited to non-mechanical types.

## RECREATION

The unique high quality recreational and scenic resources within and around the planning area are of national significance. The planning area includes portions of Capitol Reef National Park and Glen Canyon NRA and borders Canyonlands National Park. Nearby there are two other national parks, a national monument, two national forests, and a state park. While the recreational resources and potential of the planning area are great, the proximity of competing recreation areas, isolation from major population centers, and lack of development result in relatively low recreational use, except at the developed facilities in the area of Bullfrog and Hite Marinas, and along U-24 in Capitol Reef National Park. The most popular recreation activities in the planning area include camping, hunting, sightseeing and hiking.

Off-road vehicle (ORV) use in the planning area is generally low. The majority of BLM lands are open to ORV use. Exceptions include the Bull Creek Archaeological District, Nasty Flat/Bull Creek watershed, hiking trails, Blue Hills, Little Rockies WSA, Cave Flat, and Swapp Mesa. These areas are closed or use is restricted to roads or periods specified in the multiple-use management decisions (USDI, BLM, 1982b). Two special ORV use areas have been designated near Ticaboo and Caineville. ORV use on NPS lands is restricted to existing roads.

### Developed Recreation Sites

Developed recreation sites on BLM lands within the planning area are limited to Lonesome Beaver, McMillan Springs, and Starr Springs Campgrounds and Hog Springs and Dandelion Flat Picnic Areas (see Figure 3-10). The Starr Springs and Hog Springs sites are heavily used by tourists and visitors to Lake Powell. Mineral exploration and mining personnel also account for a significant portion of the high use of Starr Springs Campground. Use of Lonesome Beaver and McMillan Springs Campgrounds and Dandelion Flat Picnic Area is well below capacity because of the relative inaccessibility of these areas.



Hog Springs Trail.

Developed recreation sites on Glen Canyon NRA lands within the planning area include Bullfrog (ranger station, boat ramp, campground, picnic area, landing strip, and marina concession with boat rental, service station, restaurant, lodging, camp store, and campground), and Hans Flat (picnic area and visitor assistance station). The facilities at Bullfrog receive heavy visitation use, and the general management plan calls for expansion. Use at Hans Flat is limited due to its remote location. The developed facilities at Hite (marina, campground, concessions, etc.) are just outside the planning area but do contribute to recreational use in that portion of the planning area adjacent to the boundary.

Developed facilities in Capitol Reef National Park within the planning area are limited to those at Cedar Mesa Campground. It consists of five campsites with no water available and is well utilized in the spring



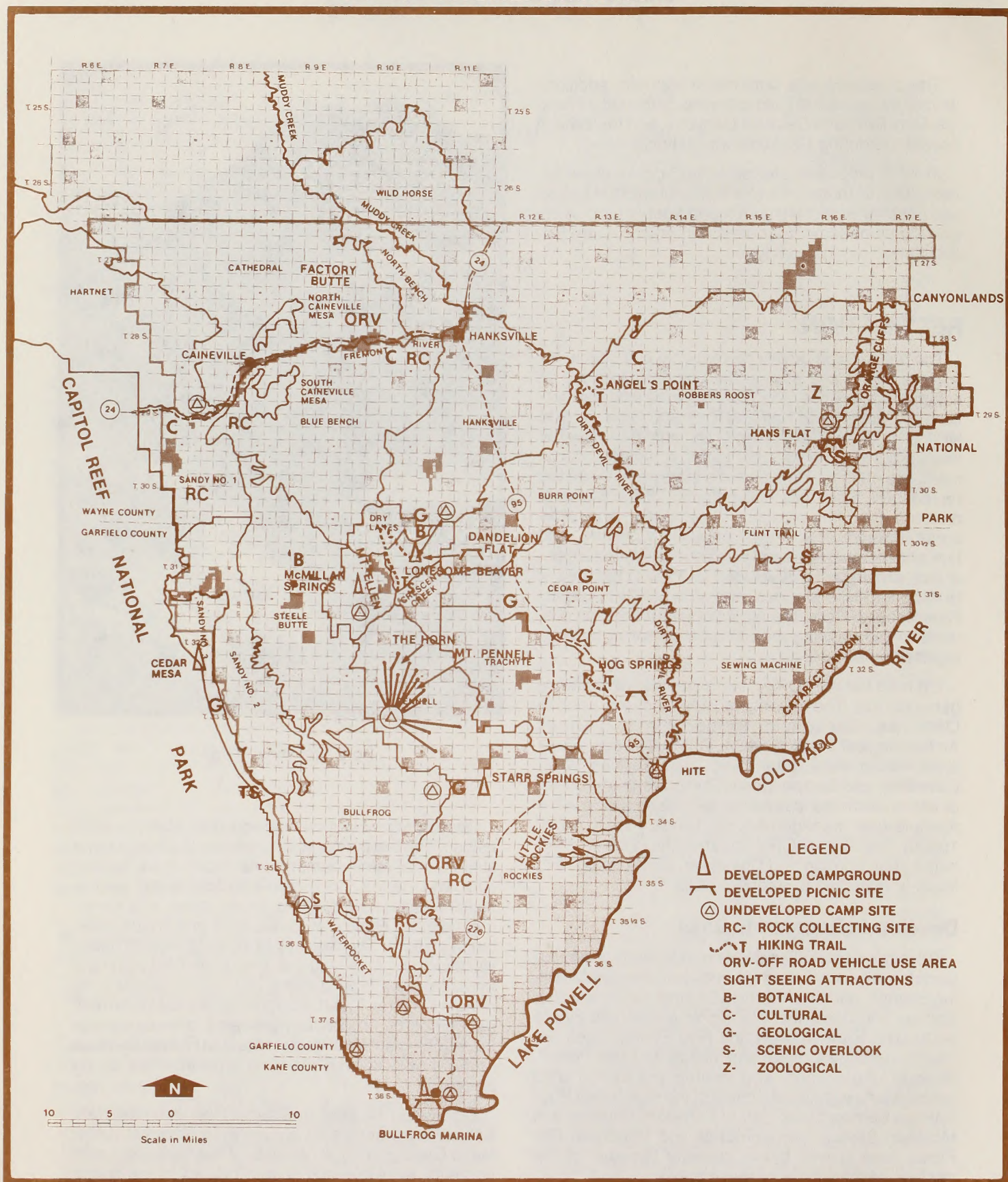


FIGURE 3-10  
RECREATION AREAS



before insects and temperatures inhibit use. The campground at Togawep is closed but there are plans to relocate its five campsites in the same immediate area.

### Undeveloped/Dispersed Recreation Sites

Undeveloped and dispersed recreation sites and activities on each allotment are listed in Table 3-12. Figure 3-10 shows the locations of developed and undeveloped or dispersed recreation sites.

There is extensive recreational use in Glen Canyon NRA. In addition to the activities at the locations identified, boaters on Lake Powell use shore areas, particularly beaches in side canyons, as campsites. Areas overlooking Millard Canyon in the vicinity of Hans Flat are also used as undeveloped campsites. Backpacking to explore the canyons on both the east and west sides of the planning area (including Glen Canyon NRA and Canyonlands and Capitol Reef National Park) is a frequent activity. Normally, this recreational use is highest in the spring and early summer before temperatures and insects inhibit participation.

Other recreational uses include rock climbing on the Horn in Pennell Allotment; general sightseeing throughout the area; floatboating on the Dirty Devil and Muddy Creek; ORV activity in the vicinity of Bullfrog, Hanksville, and Ticaboo; and winter sports (snowmobiling and cross-country skiing) in the Henry Mountains. The bison herd constitutes a major summer sightseeing attraction on the Henry Mountains. The herd is generally scattered over Mt. Ellen and Pennell where they graze, even on peaks and ridge crests over 11,000 feet in elevation.

The area offers extraordinary opportunity for wilderness activities in areas ranging from river canyons and badlands to alpine meadows (see Wilderness section of this chapter).

The bison herd on the Henry Mountains constitutes the only free-roaming, hunted bison herd in the contiguous 48 states. Ten permits were issued for the first hunt in 1950, followed by 9 years when no permits were issued. With the exception of 4 years, hunts have occurred each year since 1960. For the past 3 years, UDWR has issued 27 once-in-a-lifetime permits annually for sportsmen to hunt bison. There is also a herd of mule deer in the Henrys. To accommodate the deer herd population increases, hunting has been restricted to 1-week trophy buck-only hunts in recent years. In 1980, estimated hunter days for bison and deer were 180 and 208, respectively. Population growth in the area and the state is expected to significantly increase the demand for opportunity and amount of hunting activity in the next decade.

## CULTURAL RESOURCES

### Archaeology

The planning area contains a rich and varied cultural resource base (see Figure 3-11). Approximately 706 sites have been recorded thus far, representing human activity beginning almost 14,000 years ago and continuing to the present day.

Five distinctive prehistoric cultures are represented. The earliest is the Clovis Culture of the Paleo-Indian tradition, which has been radiocarbon dated from approximately 12,000 to 9,000 B.C. Following the Clovis Culture in the Western United States was the Folsom Culture, also part of the Paleo-Indian tradition, dating from approximately 10,000 to 7,000 B.C. Both cultures are evidenced today by highly distinctive fluted projectile points, the Clovis Point and the Folsom Point.



CLOVIS POINT



FOLSOM POINT

The Paleo-Indian tradition, beginning at least by 12,000 B.C., was eclipsed by the onset of warmer, drier climatic conditions, and the subsequent extinction of megafauna (i.e., mammoths and bison) at about 7,000 B.C. Though only two recorded sites indicate Paleo-Indian occupation in the planning area, more surely exist.

Following the Paleo-Indian tradition in the Great Basin was the Desert Archaic Culture, appearing about 7,500 B.C. These people were hunters and



TABLE 3-12

Undeveloped Dispersed Recreation Sites and Activities

Allotment or Unallotted Area	Sightseeing <sup>a</sup>	Camping Sites	Designated Hiking Trails	Rock Collecting Sites	Hunting <sup>b</sup>	Wilderness <sup>c</sup>
Blue Bench	C, G, Z (A)	--	--	1	D	1
Bullfrog	S	1	--	1	B, Ck, D	1
Burr Point	C, S, Z (A)	--	--	--	Ck	2
Cathedral	G	--	--	2	D, P	1
Cedar Point	G, Z, (A)	--	--	--	Ck	1
Crescent Creek	--	--	--	--	Bp, D, G	1
Dry Lakes	G	--	--	--	Bp, D, G	1
Flint Trail	S, Z (BS)	--	--	--	--	3
Hanksville	Z (A)	--	--	2	Ck	3
Hartnet	--	--	--	--	--	1
Little Rockies	Z (A & BS)	1	1	--	Ck	3
Nasty Flat	S	1	1	1	B, Bp, D, G	1
North Bench	--	--	--	--	--	0
North Caineville Mesa	--	--	--	--	--	0
Pennell	G, S	12	--	1	B, Bp, Ck, D, G	2
Robbers Roost	C, S, Z (A, Bu, BS)	1	1	--	--	3
Rockies	C, G, S, Z (BS)	1	2	--	Ck, D	3 <sup>d</sup>
Sandy 1	C	1	--	1	Ck	1 <sup>d</sup>
Sandy 2	--	--	--	--	B, Ck	1 <sup>d</sup>
Sandy 3	G, S	--	1	--	Ck	1
Sawmill Basin	B	1	1	--	Bp, D, G	2
Sewing Machine	Z (BS)	--	--	--	--	2
South Caineville Mesa	--	--	--	--	--	0 <sup>d</sup>
Steele Butte	B	--	--	--	B, D	2
Trachyte	--	--	--	--	Ck, D	2 <sup>d</sup>
Waterpocket	S	4	1	--	Ck	2 <sup>d</sup>
Wild Horse	Z (A, BS)	--	--	--	--	1

Note: Locations are depicted on Figure 3-10.

<sup>a</sup>B - Botanical

C - Cultural

G - Geological

S - Scenic Overlook

Z - Zoological: (A) - Antelope, (Bu) - Burro, (BS) - Bighorn Sheep. (Bison are found throughout the Henry Mountains [see Table 3-11]. Location varies seasonally).

<sup>b</sup>B - Bison

Bp - Bandtailed Pigeon

Ck - Chukar

D - Deer

G - Blue Grouse

P - White Winged Pheasant

<sup>c</sup>Number of WSAs and/or proposed and potential wilderness additions in Glen Canyon NRA or Capitol Reef National Park, portions which are within the allotment boundary.

<sup>d</sup>Contains area under WSA appeal.



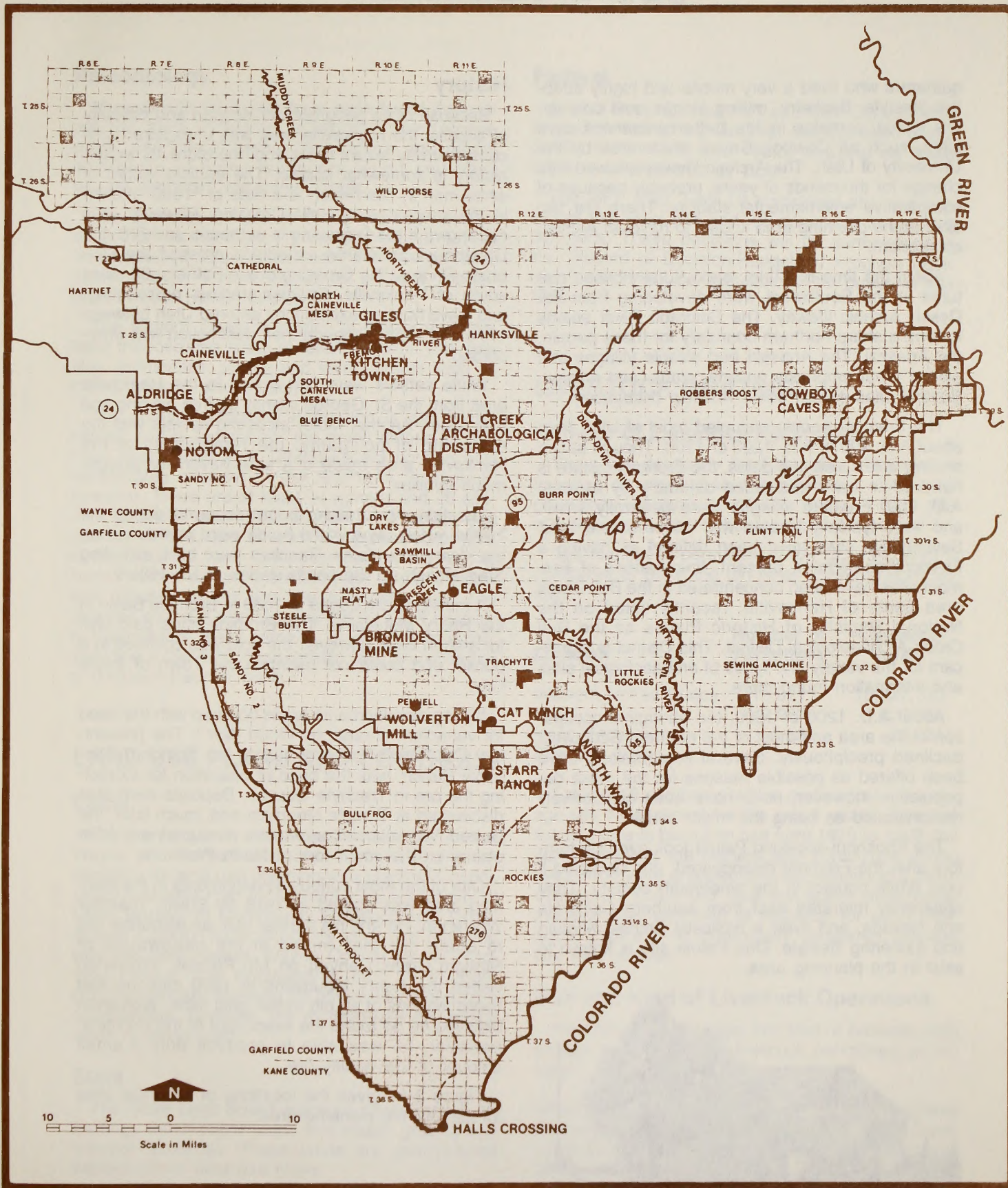


FIGURE 3-11  
ARCHAEOLOGICAL AND HISTORICAL SITES



gatherers who lived a very mobile and highly adaptive lifestyle. Basketry, milling stones, and cordage are typical remains in the better preserved cave sites, such as Cowboy Caves, excavated by the University of Utah. The Archaic lifeway showed little change for thousands of years, probably because of comparative environmental stability. There are two sites in the planning area known to have an Archaic component.

About the time of Christ, agriculturally based cultures in the Southwest were developing from the Desert Archaic lifeway. The Colorado River seems to form a sharp northern boundary for these people, the Anasazi. The Anasazi had sizable villages and placed great emphasis on arts, crafts, and religion. Several sites exhibit some Anasazi occupation.

The Fremont people occupied most of Utah from about A.D. 400 to A.D. 1200 or 1300. Though based on only a few tree-ring dates, the Fremont culture is believed to have coalesced definably by at least A.D. 700. Fremont villages were generally small, and were typically located well above arable land. Seventy-five sites have been defined as having a Fremont component present. Excavations of Fremont sites have been concentrated in the Bull Creek area south of Hanksville, recently listed on the National Register of Historic Places as the Bull Creek Archaeological District. This District is significant for the variety and types of archaeological sites and information found there.

About A.D. 1200 or 1300, the aboriginal occupation of the area and most of the northern Southwest declined precipitously. Several explanations have been offered as possible reasons for the mass depopulation; however, none have been conclusively demonstrated as being the major cause.

The Shoshoni-speaking Paiute took over the territory after the Fremont disappeared, and occupied it until White contact in the nineteenth century. They apparently migrated east from southern California and Nevada, and lived a basically Archaic hunting and gathering lifestyle. One Paiute site is known to exist in the planning area.



## History

Because of its geographical isolation and difficulty of access, the Hanksville area was unexplored until comparatively recent times and, therefore, its written history is somewhat sparse. The earliest record of white man in this region is a date of "1692" etched in the sandstone of Halls Crossing. However, it is not known if the engraving is authentic. In 1776, the Dominguez-Escalante expedition crossed the Colorado River at the Crossing of the Fathers, 80 miles south of Hanksville. Spanish trading, prospecting, and slave hunting expeditions entered Utah between 1776 and 1855, although their destination was unrecorded.

White settlers were first drawn to the Hanksville area from the St. George vicinity by free grazing and free water. Another factor attracting settlers was the outlawing of polygamy: the remoteness of the Hanksville area made it a safe haven for polygamous families.

The first stock-raising boom occurred during the 1890s, when large cattle herds were introduced on the Henry Mountains. Ranches were built, including Starr Ranch on the south slopes of Mt. Hillers.

A mining boom began in 1883 in Bromide Basin in the Henry Mountains. The Bromide mine paid well for a short time; however, the gold was confined to a pocket and could not maintain the Town of Eagle City.

Mining developments again boomed with the need for vanadium created by World War I. The present-day Cat Ranch, formerly named the Standard Chemical Ranch, was the base of operation for extracting the ore in Trachyte Canyon. Deposits were also discovered at Temple Mountain and, much later, the United Vanadium Corporation produced ore from claims on the south fork of North Wash.

One of the most curious developments in the planning area was started in 1918 by Edwin Thatcher Wolverton. He and his partner built an elaborate mill to crush ore they mined at the headwaters of Straight Creek Canyon on Mt. Pennell. Wolverton visited the Henry Mountains in 1900 after he had heard legends of an old Indian gold mine. Wolverton believed he had found the exact spot of the old mine; however, he was able to produce only a small amount of low quality ore.

Figure 3-11 gives the locations of historical sites throughout the planning area.



## Paleontology

Many significant fossils have been found throughout the area, including vertebrate, invertebrate, plant, and micro-fossils. Pleistocene and recent sediments of many types are found and have yielded important vertebrate fossils.

The Cretaceous Mancos Shale has been broken down into five members: (1) Masuk Shale; (2) Emery Sandstone; (3) Blue Gate Shale; (4) Ferron Sandstone; and (5) Tununk Shale. All of these are exposed in the Henry Mountains.

The Mancos Shale is marine in nature and contains the following types of fossil material: fish, reptiles, ammonites, plants, and invertebrates such as clams, oysters, snails, etc.

The Jurassic Morrison Formation is well represented and is famous for the many dinosaurs that have been found in it. Dinosaurs are not the only vertebrates present in the Morrison Formation, however. There are at least 14 genera and 26 species of fossil mammals, at least one genus and species of bird, and at least three species of fish, turtle, crocodile, and lizard-like reptiles, as well as large invertebrate and plant samples. Bird and mammal remains of this age are extremely rare. The Jurassic period is also represented by a few relatively insignificant fossil remains in other formations, including a few fish, invertebrates, and an occasional dinosaur track or bone.

## LAND USE PLANS AND CONTROLS

### Local

The planning area encompasses major portions of Wayne and Garfield Counties. Garfield County administers its land use planning with *Garfield County, Utah, A Master Plan for Development* (University of Utah, Bureau of Community Development, 1979). Wayne County administers its land use planning with the *Final Report, Wayne County Master Planning Project* (Call Engineering, Inc., 1976). Both plans emphasize planning for private lands and local communities; however, the multiple use of Federal lands is recognized.

### State

The State Land Board manages State section in-holdings within public lands and leases grazing and mineral resources. These lands are administered without formal land use plans.

## Federal

Capitol Reef National Park and Glen Canyon NRA are administered by General Management Plans (USDI, NPS, 1979 and 1982). Grazing on these lands is administered by BLM.

The MFP Step 3 will be completed after publication of this Final EIS and will document forage use decisions. These decisions will be summarized in the "Record of Decision/Rangeland Program Summary" which will be available to the public in late 1983.

## LIVESTOCK GRAZING

### Number of Livestock Permittees

There are presently 58 permittees. Twenty are licensed on more than one allotment. Of the 58 permittees, 51 have permits for cattle, 4 have permits for sheep, and 3 have permits for both.

The number of permittees in the planning area is compared to Utah and ten other western states below:

Location	Number of Permittees	Livestock AUMs
Western United States	13,821	10,227,730
Utah	2,057	1,023,088
Henry Mountain Planning Area	58	26,631

Table 3-13 compares active preference and average use by allotment for the last 5 years. (Average licensed use is based on use from 1976 to 1982; the years receiving the highest and lowest use during this period were dropped and the remaining 5 years averaged.) Table 3-3 lists the active preference, average use, and kind of livestock for each allotment. Figure 3-12 graphically compares average use with nonuse.

### Size and Kind of Livestock Operations

Ranching is categorized into kind of livestock, size groups, and number of livestock permittees as follows:

Small Cattle (1-100 cows)	29 Permittees
Medium Cattle (101-200 cows)	13 Permittees
Large Cattle (more than 200 cows)	12 Permittees
Sheep (950 to 2,100 ewes)	4 Permittees



TABLE 3-13

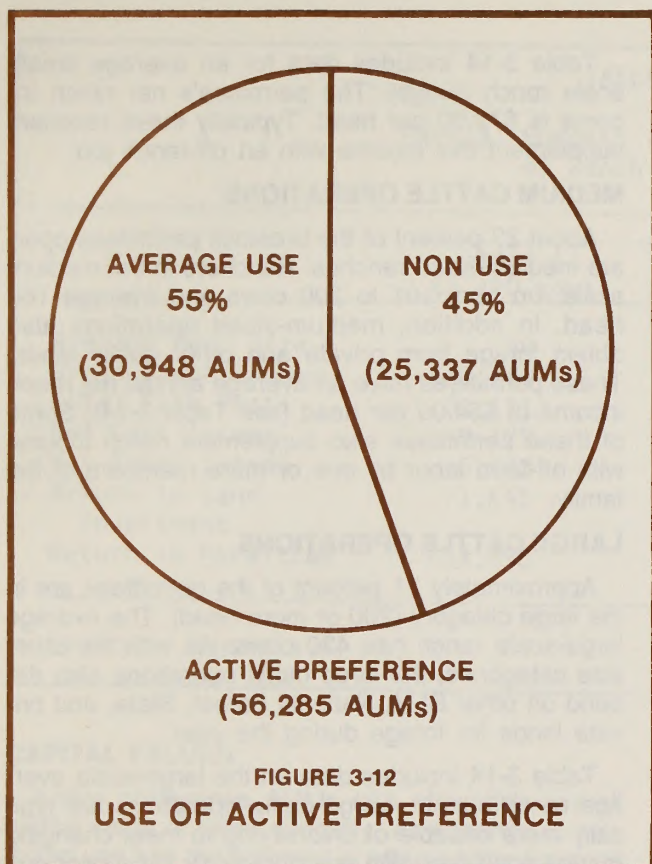
Active Preference, Average Licensed Use, and  
Percent of Active Preference Licensed for Past 7 Years<sup>a</sup>

Allotments	Active Preference (AUMs)	5-Year Average Use (AUMs)	5-Year Average Use (%)	Average Use <sup>b</sup> (Percent)						
				1976	1977	1978	1979	1980	1981	1982
Blue Bench	4,598	2,161	47	64	(12)	43	36	42	(65)	49
Bullfrog	3,442	2,226	65	67	(2)	59	54	74	70	(77)
Burr Point	4,417	1,691	38	44	(8)	32	32	40	(45)	43
Cathedral <sup>c</sup>	2,503	1,360	54	52	36	(70)	(35)	58	65	62
Cedar Point	1,892	839	44	(88)	(16)	46	38	38	50	50
Crescent Creek	332	333	100	(121)	(59)	100	100	100	100	100
Hanksville	6,000	2,848	47	(57)	(22)	47	53	37	51	49
Hartnet <sup>c</sup>	1,021	599	59	(84)	(40)	52	56	62	60	62
Nasty Flat	474	468	99	(100)	(62)	95	100	100	100	100
North Bench	456	45	10	44	(0)	0	0	0	13	(54)
Pennell	2,594	1,960	76	(88)	(25)	72	70	79	80	77
Robbers Roost	5,288	2,882	55	79	(40)	57	45	45	46	(100)
Rockies	5,872	3,890	66	(75)	(10)	68	60	64	68	71
Sandy 1 <sup>c</sup>	978	844	86	(100)	(43)	73	82	91	91	97
Sandy 2	2,228	1,257	56	49	34	61	(16)	38	100	(100)
Sandy 3 <sup>c</sup>	305	271	89	78	(10)	76	(112)	92	92	92
Sawmill Basin	166	33	20	(100)	(0)	0	0	0	100	0
Sewing Machine	1,600	998	62	(9)	73	(100)	90	27	82	40
Steele Butte	5,034	2,672	53	(97)	36	44	(9)	46	43	97
Trachyte	2,853	1,626	57	63	(15)	40	61	61	(64)	61
Waterpocket <sup>c</sup>	3,165	1,841	58	(97)	(10)	38	32	78	64	79
Wild Horse	1,067	104	10	19	(0)	0	0	0	23	(41)
Total	56,285	30,948	55	72	25	53	49	53	67	68

Source: USDI, BLM, 1982a.

<sup>a</sup>License period is from March to March.<sup>b</sup>The years receiving the highest and lowest use from 1976-1982 were dropped and the remaining 5 years averaged to calculate average licensed use. Numbers in ( ) are the high and low years dropped to average the licensed use on the allotment as per agreement with Henry Mountain Resource Area Permittee Committee.<sup>c</sup>Does not include grazing within Capitol Reef National Park. See Table 2-2, Alternative A, for breakdown of preference and licensed use between BLM and National Park lands.





Although seven cattle permittees have sheep permits, only one of the sheep permits has been active during the last 5 years.

Livestock operations are primarily cow-calf and ewe-lamb, although some cow-calf permittees occasionally run additional steers. A base herd of cows, each cow preferably with a calf, are grazed as a unit during the summer. Usually cows without calves are grazed during the winter. Some cows calve on the range during the spring. Sheep use is made by ewes without lambs during the winter months.

### Period of Use

Over 90 percent of the permittees rely on spring, winter, and fall grazing. A breakdown of livestock grazing by allotment and period of use is given in Table 2-2.

Most of the planning area is used during the fall, winter, and spring seasons (October 1 to May 30). The Henry Mountains Proper is used by 10 permittees during the summer. Most permittees use National Forest, private, or BLM lands outside the planning area for summer ranges.

### Management Levels and Practices

Allotment Management Plans (AMPs) have been developed on six allotments. Generally, livestock grazing has been allowed with little control of movement within allotments not having AMPs, except for limited herding, salting, water development, or fencing. Individual permittee's practices vary depending on their time on the job (full or part time), breeding programs, breeds of livestock, kinds and methods of maintaining rangeland improvements, livestock handling procedures, and supplemental feeding and salting practices.

Calving generally takes place from March through May. Calves weigh between 120 and 200 lbs. when they are taken to summer ranges. When cattle are removed from summer ranges around October, calves are weaned and sold at weights between 350 and 400 lbs.

Lambing occurs in April and May. The lambs are usually cut out of the band and sold in October or November after being raised mostly on non-BLM lands and land outside the planning area. At this time they usually weigh between 75 and 85 lbs.

### SOCIOECONOMICS

The majority of livestock permittees live in Wayne County. However, because of existing geographic and economic interrelationships, the economic impact area analyzed will include Wayne, Sevier, and Garfield Counties, all in Utah.

The people of Wayne and Garfield Counties are economically dependent upon having access to and using the natural resources in and near the planning area. The livestock industry and the production of livestock forage on public lands has traditionally been a major element in their economy. Many livestock permittees work at other jobs, however, and livestock operations are not always their primary source of income.

Sevier County, while still rural in nature, has a more diverse economic base and is a service center for Wayne and Garfield Counties.

The population of these three counties increased from 14,743 people in 1970 to 20,311 people in 1980. This represents a 38-percent increase or an annual growth rate of 3.26 percent. During this same time, the State of Utah population increased by 38 percent, an annual growth rate of 3.3 percent. Thus, in comparison, these counties grew at rates comparable to the State average (U.S. Department of Commerce [USDC], Bureau of the Census, 1981b).



From 1970 through 1980, total non-agricultural employment increased by 66 percent in Wayne County and 200 percent in Garfield County, for annual growth rates of 5.2 and 7.18 percent, respectively. In Sevier County, the increase was 80 percent or an annual rate of 6.1 percent (Utah Department of Employment Security, 1982). The farm sector in all three counties had a decrease in employment of between 5 and 6 percent for the period from 1974-79 (USDC, Bureau of the Census, 1981a).

In 1978, the value of livestock and livestock products sold in Wayne, Garfield, and Sevier Counties was \$2,971,000, \$2,869,000, and \$23,538,000, respectively. The total in the three-county area was \$29,378,000, which accounted for 85 percent of the total agricultural products sold (USDC, Bureau of the Census, 1981c).

### Sales From Big Game Hunting

It is estimated that bison hunters spend about \$206.00/day and that other big game (deer) hunters spend about \$47.00/day (USDA, FS, 1977). At those rates, the estimated 108 bison hunter days and 208 deer hunter days in 1980 generated about \$32,024 in sales (\$22,248 for bison and \$9,776 for deer).

### Ranch-Related Economic Conditions

Cattle ranching operations were divided into small, medium, and large categories. Average ranch budgets were then developed for each size. (While there are four permittees holding sheep permits, most of them have not used their permits during the past 5 years; therefore, no analysis is made for sheep ranches.) These budgets, displayed in Table 3-14, show the revenues and expenses for the "average ranch" within each category and provide baseline data for subsequent calculations. The assumption inherent in this approach is that individual operations within any one category are sufficiently represented; therefore, any conclusions applied to the "average ranch" would also apply to the majority of its individual operations. It should be noted, however, that wide differences may occur among individual operations. Detailed ranch budgets from these categories are presented in Appendix 4. (Data used in describing and analyzing ranch budgets is from Jacobson [1981] unless otherwise cited.)

#### SMALL CATTLE OPERATIONS

About 48 percent of the livestock permittees are in the small-size (1-100 animals) category. The budgets for these ranches show an average of 90 cows. These permittees also graze livestock on other public lands (National Forest, State, or other BLM lands) and on owned or rented private lands.

Table 3-14 includes data for an average small-scale ranch budget. The permittee's net ranch income is \$72.00 per head. Typically these ranchers supplement this income with an off-ranch job.

#### MEDIUM CATTLE OPERATIONS

About 23 percent of the livestock permittees operate medium-sized ranches. Ranchers in the medium scale run from 101 to 200 cows and average 160 head. In addition, medium-sized operations also obtain forage from private and other public lands. These permittees have an average annual net ranch income of \$54.00 per head (see Table 3-14). Some of these permittees also supplement ranch income with off-farm labor by one or more members of the family.

#### LARGE CATTLE OPERATIONS

Approximately 21 percent of the permittees are in the large category (200 or more head). The average large-scale ranch has 430 cows. As with the other size categories, the large cattle operations also depend on other BLM, National Forest, State, and private lands for forage during the year.

Table 3-14 includes data on the large-scale average ranch budget. Large cattle operations are typically more capable of diversifying to meet changing market conditions and are more likely to be operated by fulltime ranchers. Their per head ranch income is estimated at \$99.00.

#### ANNUAL RETURNS

The factors which affect a livestock permittee's ranch income are: (1) price per unit weight at sale; (2) weight per animal; (3) number of animals; and (4) costs of raising the animal to marketability. BLM management has the potential of affecting all but the price per unit weight.





TABLE 3-14

Partial Budgets for Each Category  
of Ranch Permittee

	Categories		
	Small (1 to 100 cows)	Medium (101 to 200 cows)	Large (201+ cows)
Average Herd Size	90	160	430
Gross Ranch Income	\$30,240	\$50,772	\$141,616
Total Cash Costs	21,111	37,470	90,585
Net Cast Income	9,129	13,302	51,031
Net Ranch Income	6,482	8,689	42,566
Return to Land Investment	-1,645	-5,466	8,288
Return to Permittee	-14,090	-21,402	-35,032

Source: Appendix 4.

### CAPITAL VALUES

Active preference AUMs can affect the overall capital value of ranch property. Any change in permitted use has the potential of affecting the livestock permittee's ability to secure a loan and the overall capital value of his property.

BLM AUMs may be transferred from one permittee to another. The dollar value given by one permittee (buyer) to induce a present permit holder (seller) to transfer his permit is known as the "permit value" of an AUM. This "permit value" may have a significant bearing on the permittee's wealth position. The current permit value of an AUM is estimated at about \$20.00 per AUM (Bagley, 1982).

### Attitudes and Lifestyles

Many livestock operations on the planning area have been traditionalized over several generations. However, most permittees do not live in the planning area. Working in outdoor employment and directly relating with the region's natural resources are important lifestyle aspects. As a consequence, livestock permittees regard the region as a good place to live and raise a family and, generally, would not consider relocating to another area for alternative employment. For the most part, they feel that multiple-use management by BLM is at least satisfactory (DePaepe, 1981).

Mining is another important area employment opportunity. Livestock permittees and miners tend to be oriented only toward their respective resource. Livestock permittees generally do not favor big

game and believe herd sizes, particularly bison, should be reduced. Miners usually regard big game as an important recreational resource and would like to see numbers increased (Edmonds and DePaepe, 1981).

Conservation groups generally accept livestock grazing, under proper management, as a compatible planning area land use. However, conservation groups believe that priority forage use should be made for bison, bighorn sheep, and antelope. In addition, they consider the planning area as having high national significance because of the outstanding scenic and recreational values (USDI, BLM, 1981a).

### Human Health and Safety

BLM liability for damages resulting from livestock grazing along Utah Highways U-24, U-95, and U-276 was identified as a possible issue. BLM is not liable for domestic livestock vehicle collisions along the above-referenced highways (Utah Highway Patrol, 1981). Under the law, the driver is responsible in the event of any vehicle-domestic livestock collisions in "open range" areas. Because these highways are classified as open range, BLM would be liable only when a BLM vehicle struck an animal.

Reported accidents along these highways during recent years show one animal killed on U-24; no animal-vehicle collisions on U-95; two killed along U-276 between Bullfrog and the junction with U-95; two killed in 1978; one killed in 1979; and one killed in 1980. There were some injuries but no fatalities from these accidents.







# CHAPTER 4

## ENVIRONMENTAL CONSEQUENCES

### BASIC ASSUMPTIONS AND ANALYSIS GUIDELINES

This chapter analyzes how the alternatives described in Chapter 2 would impact the affected environment discussed in Chapter 3. This discussion is arranged so that adverse and beneficial effects of each alternative can be compared by resource.

This chapter also analyzes how each alternative would affect the resources identified in Chapter 3, followed by a conclusion of how each alternative would affect the rangeland ecosystem and the animals and people that rely on it.

It is assumed that the amount of forage use proposed under each alternative would be used entirely by the animal to which it is assigned. Livestock herd size would be adjusted to forage use levels, and big game would reach their proposed forage use levels.

The following terms are used in describing impacts expected from the alternatives:

*Short Term.* Impacts which would last for not more than 5 years.

*Long Term.* Impacts which would last 20 years or more.

*Irreversible.* A permanent commitment of resources; an action that, once taken, would cause a permanent change. A return to the current situation would be impossible or technically or economically unfeasible.

*Irrecoverable.* A permanent loss of resources that would be impossible or technically or economically unfeasible to replace.

The unavoidable adverse and beneficial impacts, short-term use and maintenance and enhancement of long-term productivity, and irreversible and irretrievable commitment of resources are discussed throughout this chapter. This discussion is organized by resource and alternative. Table 2-5, located at the end of Chapter 2, presents this information in a summary form.

### RESOURCES NOT ANALYZED

Certain resources would not be affected by the actions analyzed in this environmental impact statement (EIS). Also, none of the actions proposed in the alternatives would violate laws or established

policy, assuming that the standard measures outlined in Chapter 2 were adhered to. Therefore, the following resources are not included in impact analysis.

### Cultural Resources (Archaeology, History, and Paleontology)

The Bureau of Land Management (BLM) has entered into a Memorandum of Understanding with the Utah State Historic Preservation Officer outlining compliance with the National Historic Preservation Act (see Appendix 2). Even with the implementation of proposed mitigation, ground-disturbing actions (i.e., construction of rangeland improvements) could inadvertently damage or destroy cultural resources, resulting in a loss of scientific and educational information.

Any destruction of cultural remains during land treatment would result in a long-term loss of scientific and educational information since present salvage techniques do not ensure total information recovery. This adverse impact is irreversible; the information lost by that impact is irretrievable. However, the intensive cultural resource inventory required prior to any ground-disturbing action would be a beneficial impact to our knowledge of cultural resources because it would result in the documentation of previously unknown sites and areas.

### Threatened, Endangered, and Sensitive Species

Because of Standard Measure No. 5 included in Chapter 2 (Grazing Administration section), no impact is expected to occur to any threatened, endangered, and sensitive animal or plant species.

### Geology

No actions analyzed in this EIS would impact geology, including minerals, oil, and gas.

### Land Use Plans and Controls

All actions analyzed in this EIS are in compliance with the land use plans and controls of other agencies having jurisdiction in or near the planning area.

### Air Quality

No action analyzed in this EIS would impact air quality.



## VEGETATION

The vegetation production data displayed and used in this EIS were collected during the 1978-1980 field seasons (U.S. Department of Interior [USDI], BLM and Earth Environmental Consultants, 1980). These data, along with 10-12 years of monitoring and trend studies, were used to help determine areas suitable for continued livestock grazing and to provide the basis for developing a rangeland management program and management alternatives. The vegetation production data have also been used to identify and analyze impacts and mitigation of the proposed action and alternatives. Reviewers of this EIS, however, should recognize the limitations of vegetation inventory data. While these data are adequate for purposes of planning and analysis, it must be supported by the results of monitoring studies before making forage allocation decisions.

However, impacts to vegetation resulting from different alternative levels of grazing can be identified and are analyzed for each allotment in this EIS, using average licensed use, ecological condition, and more than 10 years of monitoring and trend studies, supported by the soil-vegetation inventory (see Table 3-3).



Natural potential vegetation is the result of climate and soils and use by native animals. The ecological condition, trend, and forage production that is described in Chapter 3 is a result of past and current livestock grazing and fire control. Allotment level analysis of the inventory and study data indicates that current grazing use exceeds total grazing capacity on six allotments and one unallotted area (see Table 4-1) and that the period, pattern, or distribution of grazing use is a problem on portions of five other allotments.

It has been shown that, where use by livestock and big game exceeds grazing capacity, vegetation overutilization occurs. It is well documented that utilization averaging greater than 50 percent on an annual basis, especially during critical periods of plant growth and reproduction, weakens and eventually destroys most native rangeland plants. This is because of losses of carbohydrate reserves (Stoddard et al., 1975; McIlvanie, 1942), losses of live root mass (Cook, 1966), and reduction of plant vigor as measured by herbage weight and seed stalk production (Mueggler, 1975).

Period of use can also be a problem for rangeland plants. Studies conducted in western Utah on rangelands similar to those in the Henry Mountain Planning Area have shown that there is a relationship between period of use and intensity of harvesting (Cook, 1971). These studies found, without exception, that excessive spring grazing reduced twig length in browse and the number of seed stalks in grasses and caused a larger portion of the plants to die in each species. In general, too heavy, too early, and too frequent removal of herbage results in a marked decline in the vigor of rangeland plants.

Usually the most productive and palatable plants and those most sensitive to grazing are the first to be reduced in a plant community. As the population of a certain plant species is reduced, ecological condition is adversely affected and trend turns downward.

Trend studies indicate change by monitoring key plant species in a rangeland site over time. If trend is sustained in one direction over a long period of time, the condition class of a range site can change. Therefore, trend studies are reflective of a gradual change in condition class.

It can be concluded that, with no change in the level, pattern, or period of livestock use or distribution, trend would continue in the direction shown in Appendix 3. On range sites where the trend is down, the next lower condition class would be reached. There would be no change in condition class on sites where trend is static. There would be improvement to the next higher condition class for range



# CHAP. 4 — ENVIRONMENTAL CONSEQUENCES

TABLE 4-1  
Comparison of Grazing Use to Forage Production<sup>a</sup>

Allotments	Alternative A				Alternative B			
	Average Licensed Livestock Use Exceeds Grazing Capacity	Percent of Grazing Capacity Used	Big Game Use Exceeds Grazing Capacity <sup>b</sup>	Percent of Grazing Capacity Used	Livestock Use at Preference Would Exceed Grazing Capacity	Percent of Grazing Capacity Used	Big Game Use at Full Big Game Reservation Would Exceed Grazing Capacity	Percent of Grazing Capacity Used
Blue Bench	No	--	Yes (B) <sup>c</sup>	160	Yes	167	Yes (B)	320
Bullfrog <sup>d</sup>	No	--	Yes (B)	131	Yes	134	No	--
Burr Point <sup>d</sup>	No	--	Yes (D) <sup>e</sup>	109	Yes	114	Yes (0)	203
Cathedral	No	--	No	--	Yes	134	No	--
Cedar Point	No	--	Yes (B)	188	Yes	146	Yes (B)	125
Crescent Creek	Yes	184	No	--	Yes	183	No	--
Hanksville <sup>d</sup>	No	--	No	--	No	--	No	--
Hartnet	No	--	No	--	Yes	106	No	--
Nasty Flat	Yes	158	Yes (D)	103	Yes	160	Yes (0)	248
North Bench	No	--	No	--	Yes	149	No	--
Pennell <sup>d</sup>	No	--	Yes (B)	101	Yes	110	No	--
Robbers Roost <sup>d</sup>	No	--	No	--	No	--	No	--
Rockies <sup>d</sup>	No	--	Yes (0)	109	Yes	129	Yes (0)	136
Sandy 1 <sup>d</sup>	Yes	116	No	--	Yes	139	No	--
Sandy 2	Yes	176	Yes (B)	127	Yes	312	Yes (B)	107
Sandy 3	No	--	No	--	Yes	101	No	--
Sawmill Basin	No	--	No	--	Yes	259	No	--
Sewing Machine	No	--	No	--	No	--	No	--
Steele Butte	Yes	142	Yes (B)	143	Yes	267	Yes (B)	126
Trachyte <sup>d</sup>	Yes	103	No	--	Yes	180	No	--
Waterpocket <sup>d</sup>	No	--	No	--	No	--	No	--
Wild Horse	No	--	No	--	No	--	No	--
<u>Unallotted Areas</u>								
Dry Lakes	--	--	Yes (B)	226	--	--	Yes (B)	190
Flint Trail	--	--	No	--	--	--	No	--
Little Rockies	--	--	No	--	--	--	No	--
North Caineville Mesa	--	--	No	--	--	--	No	--
South Caineville Mesa	--	--	No	--	--	--	No	--

Source: These figures were derived from the soil-vegetation inventory conducted by USOI, BLM and Earth Environmental Consultants, Inc. (1980).

<sup>a</sup>See Table 2-2, Alternative A, for numbers of livestock and big game involved.

<sup>b</sup>Estimated big game use exceeds grazing capacity based on optimum big game diets. The acreage involved is limited, see Tables 3-6 and 3-8.

<sup>c</sup>(B) = Bison use.

<sup>d</sup>To determine if overutilization is occurring or would occur, total cattle use was added to total sheep use and compared to the total of both sheep and cattle forage. There are differences in competitive forage between sheep and cattle from allotment to allotment which are caused by differences in plant composition. See footnotes g and h on Table 2-2, Alternative E for explanation of specific situations on common use (sheep and cattle) allotments.

<sup>e</sup>(D) = Deer use.



sites with an upward trend. The time period involved in a change from one condition class to another would be different for each range site. A change to a lower condition class would be marked by fewer desirable plant species and reduced diversity and forage production. Maintaining a range site in a lowered condition class can contribute to increased erosion and has the potential for permanently lowering the production potential.

Of the 127 trend plots in the planning area, 23 show a downward trend and 16 are static on poor condition rangeland (see Appendix 3). This indicates that, after considering precipitation, grazing use may be a problem. Conversely, there are 44 plots on which the long-time estimate of trend is upward or static on good condition rangeland. This indicates the likelihood of insignificant or no grazing use problems over the study period.

### **Alternative A: Proposed Action—No Change**

The adverse impacts of Alternative A can be summarized as follows:

1. Overutilization would continue on six allotments and one unallotted area. See Table 4-1 for allotments, unallotted areas, and percent of overutilization.
2. The period, distribution, or pattern of use would continue to cause overutilization on portions of Burr Point, Cedar Point, Hartnet, Pennell, and Hanksville Allotments.
3. A downward or static trend on poor condition rangeland would continue on 39 of 127 trend plots, affecting 13 allotments.

This alternative has the potential for adversely affecting forage production and ecological condition on 14 percent of the public land in the planning area.

### **Alternative B: No Action**

The level of use under this alternative would more than double from current use (36,152 animal unit months [AUMs]) to 63,585 AUMs (active preference plus big game reservations), a 76-percent increase. Allotment analysis shows that grazing use would exceed forage production on 17 allotments and one unallotted area. With an increase in grazing, problems with the livestock and bison period or pattern of use or distribution would intensify and cause heavy or severe utilization on portions of four other allotments. As discussed in Alternative A, plant species which contribute most to forage production would respond adversely to overutilization and increased use during early spring; this reaction would continue

through early summer. These are periods critical to plant growth and reproduction.

It is expected that trend studies would show an increase in undesirable plant species and a decrease in desirable plant species. The key plant species used in the trend studies are shown in Appendix 3.

Because of the distribution of trend study plots, it is not possible to accurately predict how each plot would respond. However, a worst-case analysis indicates that 36 of 38 improving plots would become static and 63 of 65 static plots would begin to show a downward trend within an estimated 5 years. Sustaining the level of use proposed by this alternative would cause an eventual reduction in the current ecological condition as shown in Table 3-3. As stated previously, maintaining a range site in a lowered condition class can permanently lower its production potential.

The adverse impacts to vegetation under Alternative B can be summarized as follows:

1. Overutilization would occur on 17 allotments and one unallotted area. (See Table 4-1 for allotments, unallotted area, and percent of overutilization.)
2. Heavy or severe utilization of forage plant species would occur because of livestock or bison period, distribution, or pattern of use on portions of Hanksville, Robbers Roost, Waterpocket, and Wild Horse Allotments.
3. Trend would turn from improving to static and from static to down on all or portions of the allotments and unallotted areas shown in Table 4-1.

This alternative could adversely affect forage production and rangeland condition on 56 percent of the BLM and Glen Canyon National Recreation Area (NRA) lands in the planning area.

### **Alternatives C, D, and E**

The impacts to vegetation under Alternatives C, D, and E would be the same for most allotments. The level of livestock grazing use would be adjusted to each allotment's forage production capacity as determined by monitoring studies and the soil-vegetation inventory. Allotment analysis indicates that overutilization would continue on some areas primarily because of the bison or livestock period or pattern of use or distribution. However, rangeland improvements have been specifically designed for each alternative to help remedy such overutilization. In addition, allotment management plans (AMPs) will be written in consultation with permittees outlining



the use of rangeland improvements and any changes in livestock grazing use.

The identifiable impacts to vegetation from Alternatives C, D, and E are analyzed below.

1. **Alternative C: Optimize Big Game:** In the short term, bison use would continue to exceed grazing capacity on the Dry Lakes unallotted area (see Table 4-1). In addition, overutilization would continue because of the period or pattern of use or distribution of livestock on portions of Burr Point, Cedar Point, Sandy 2, Hanksville, and Hartnet Allotments.

2. **Alternative D: Optimize Livestock:** Use would not exceed grazing capacity on any allotment. In the short term, overutilization would continue because of the period or pattern of use or distribution of livestock on portions of Burr Point, Cedar Point, Nasty Flat, Hanksville, Hartnet, and Pennell Allotments.

3. **Alternative E: Preferred Alternative—Planning Recommendation:** In the short term, bison use would continue to exceed grazing capacity on the Dry Lakes unallotted area. In addition, overutilization would continue because of the period or pattern of use or distribution of livestock and bison on portions of Burr Point, Cedar Point, Nasty Flat, Sandy 2, Hanksville, Hartnet, Pennell, and Steele Butte Allotments.

Overutilization occurring under Alternatives C, D, or E would be short term because the rangeland improvements shown in Table 2-4 are designed specifically to: (1) increase forage production or improve forage quality; (2) adjust the livestock period or pattern of use to enhance forage production; and (3) correct distribution problems. Overutilization would last from the time the alternative was implemented until the rangeland improvement became established. From experience with other management plans and EISs, this would be from 2 to 5 years. During this period of time, it is expected there would be little or no change in trend, rangeland condition, or forage production.

In the long term, after full implementation of either Alternative C, D, or E, grazing use would generally not exceed grazing capacity on any allotment. However, because of the nature of grazing animals, isolated areas of overutilization would probably still exist, especially along riparian zones and around reservoirs. It is expected that, in the long term, trend would show improvement over the entire planning area and ecological condition would improve. The amount of improvement cannot be quantified with available data.



### RANGELAND IMPROVEMENTS

Rangeland improvements are proposed for Alternatives C, D, and E. Figure 4-1 shows approximate locations of rangeland improvements. Proposed improvements are the same for these three alternatives. However, the land treatment proposed on Dry Lakes unallotted area under Alternative C is primarily to benefit big game animals. It could, however, benefit livestock grazing indirectly by providing more forage for bison and thus relieving grazing pressure on Nasty Flat Allotment.

Table 2-4 lists proposed rangeland improvements and grazing management practices for each allotment and unallotted areas. Table 4-2 summarizes the data provided in Table 2-4 in acreages for the planning area.

Five general proposals are made for changes in grazing management: (1) continue present grazing system; (2) implement a new grazing system; (3) implement season-long grazing; (4) continue season-long grazing; and (5) discontinue livestock grazing.

1. *Continue Present Grazing System.* Some form of grazing system based on rotation and deferred use or rest-rotation of two or more management units (pastures) is presently being followed on ten allotments under an AMP or management agreement. These allotments are responding favorably to the grazing system and rangeland improvements (e.g., development of water sources).

2. *Implement a Grazing System.* Favorable conditions exist on seven allotments for the development of a grazing system that would increase forage production. Some rangeland developments (i.e., additional water developments and fences) could be required before implementation.

3. and 4. *Implement New Grazing System/Continue Season-long Grazing.* It is proposed to continue season-long grazing on four allotments and to implement season-long grazing on one allotment. There are presently no practical means for dividing these allotments into management units (pastures).



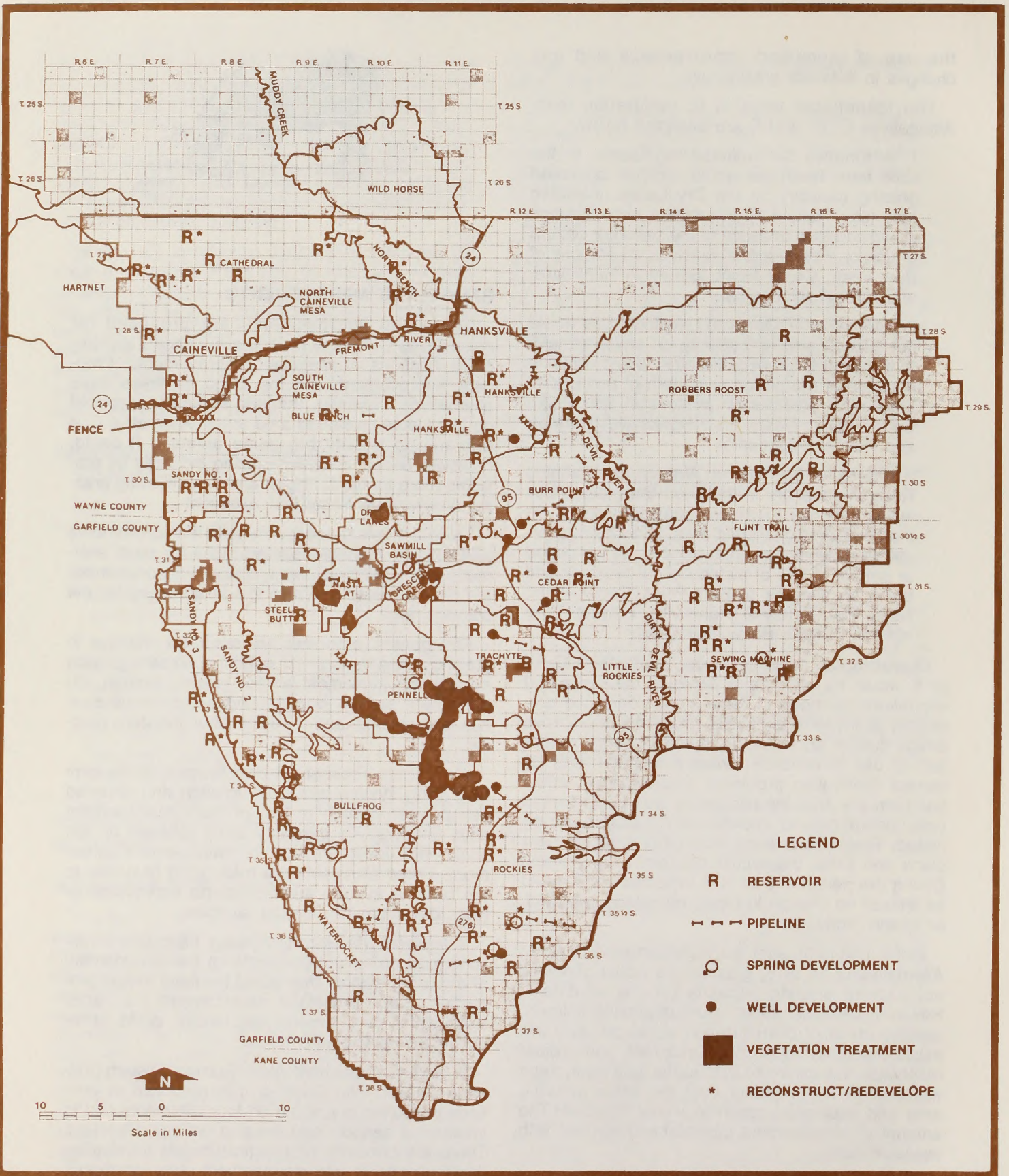


FIGURE 4-1  
PROPOSED RANGELAND IMPROVEMENTS  
FOR ALTERNATIVES C, D AND E



TABLE 4-2

Proposed Rangeland Improvements and Grazing  
Management Practices Under Alternatives C, D, and E

Practices	<u>Grazing Management</u>	
		Number of Allotments and Unallotted Areas
1. Continue Present Grazing System		10
2. Implement a Grazing System		7
3. Continue Season-long Grazing		4
4. Implement Season-long Grazing		1
5. No Livestock Grazing		5

Alternative	<u>Land Treatments</u>				
	Number of Allotments and Unallotted Areas	Acres	Livestock AUMs	Big Game AUMs	Total AUMs
Alternative C	10	24,300	423	2,552	2,975
Alternative D	10	24,300	2,815	160	2,975
Alternative E	10	24,300	2,415	560	2,975

Type	<u>Rangeland Developments</u>	
	Number of Allotments and Unallotted Areas	Units
Springs		
Redevelop	3	3
New	10	15
Reservoir		
Recondition	17	60
New	17	59
Pipelines (miles)	8	37
Troughs	13	38
Wells		
Vertical	3	6
Horizontal	1	2
Corrals	1	1
Fences (miles)	5	17
Cattle Guards	2	2

Source: USDI, BLM, 1982b.



5. *Discontinue Livestock Grazing.* No livestock grazing is scheduled for five unallotted areas, except under Alternative D. Some of these areas are unsuited to livestock grazing because of lack of access or dependable water supplies, steep slopes, or values of the areas for other resources. Although Flint Trail unallotted area has no livestock grazing scheduled, it could be used on a temporary, as-needed basis while other allotments were being rehabilitated or in an emergency situation. Before livestock grazing would be allowed, coordination with the Utah Division of Wildlife Resources (UDWR) and the National Park Service (NPS), Glen Canyon NRA would be initiated.

#### Land Treatments

Specific land treatments have not been identified for each site because it is not known at this time what constraints will be placed on the treatment measures prescribed. Identified sites have the potential to respond favorably to any number of treatments including chain and seed, plow and seed, contour furrow or trench and seed, burn and seed, burn only, spray, and interseed with browse and/or forbs. Factors such as soils, climate, topography, existing vegetation, and current big game use have been evaluated to determine the potential of the sites for increased forage production and ground cover for soil protection and improved plant composition (condition).

Each site was evaluated for probability of success. Only sites having 50 to 70 percent or more chance for success were considered. The following criteria were used to determine sites within each allotment where land treatment should be proposed:

1. Need for measures that would reverse downward trend in rangeland condition within an acceptable period of time (e.g., 5 years on sensitive sites).
2. Need to improve ecological condition and site productivity to an acceptable level within a reasonable period of time (e.g., 15 to 20 years) if grazing management alone would not meet this level.
3. Suitability of the site for grazing livestock and/or for big game habitat based on suitability criteria.
4. Soil suitability in areas receiving land treatment. Soils should be deep, low in soluble salts, and possess physical properties (texture and structure) favorable to soil moisture storage. Effective root depths of 16 inches or more are desirable (Robinson, 1979). Soils with soluble salts in excess of 1 percent (particularly sodium) are not suitable for restoration measures. Treat-

ment of rocky soils and landscapes may be limited to burning or spraying with selective herbicides (Plummer et al., 1968).

5. Suitability of the slopes to sustain vegetation modification in areas receiving land treatment. Slopes of less than 20 percent are generally best suited for restoration treatment. Slopes of up to 50 percent can be chained and burned with care. Slopes exceeding 50 percent are not considered for treatment except for stabilizing soils and reducing runoff (Plummer et al., 1968; Valletine, 1974).

6. Availability of soil moisture for vegetation modification. Precipitation in excess of 9 inches is generally essential for successful treatments. Crested wheatgrass and Russian wildrye can be successfully seeded where the annual precipitation exceeds 10 inches; such species as intermediate wheatgrass require in excess of 13 inches (Plummer et al., 1968; Vallentine, 1974). Alfalfa and other forbs, as well as desirable shrubs, may be seeded or interseeded with grass where rainfall is 12 to 15 inches or more (Plummer et al., 1968).

7. Needs of grazing animals (e.g., seeding to furnish early spring grasses for livestock or to produce more desirable browse and forbs for wintering big game and/or livestock) (Cook and Harris, 1968a; Frischknecht and Stevens, 1979).



(Standard) Crested wheatgrass (L)  
(Fairway) Crested wheatgrass (R)



The kind of land treatment proposed depends on current vegetation and soil conditions. Spraying and burning may control sagebrush where there are at least one desirable shrub and ten desirable forbs per 100 square feet and at least one key grass plant encountered each one or two paces across the site (Plummer et al., 1968). Burning also requires sufficient plant material to carry a fire; however, if the area is critical to animal life, this method is not acceptable. Where insufficient desirable plant cover occurs, seeding would be required. In addition to useable grasses, various mixtures of shrubs and forbs should be planted (Frischknecht and Stevens, 1979). The method of seedbed preparation could vary, depending on the cover type of the site. Chaining is the most useful in controlling a pinyon-juniper area, while both plowing and chaining can control sagebrush and leave a desirable seedbed.

If plant cover is low and excessive on-site runoff and erosion are occurring, contour furrowing and structures such as gully plugs are required to establish a desirable vegetation community (Robinson, 1979).

Standard design features applicable to land treatments are available in various publications (Plummer et al., 1968; Vallentine, 1974).

Water developments, fencing, stock trails, and other supporting rangeland improvements would be installed on allotments to be used in combination with land treatment and other management tools to improve rangeland conditions, protect important habitat areas, and correct existing rangeland problems.

Under Alternative D, nine allotments and one unallotted area (24,300 acres) would be treated, making 2,975 AUMs available for livestock. In addition, 3,000 acres of existing grass seedings would be interseeded with forbs, making 400 additional AUMs available to livestock. The additional forage from the interseeding of desirable forbs would also improve the forage quality for big game.

Under Alternatives C and E, 24,300 acres on nine allotments and one unallotted area would be treated to increase the grazing capacity by an estimated 2,975 AUMs (see Table 4-2). Under Alternative C, the additional 2,552 AUMs would be provided to big game and 423 AUMs to livestock. Under Alternative E, 2,415 AUMs would be provided to livestock and 560 AUMs to big game.

Because no rangeland improvements or changes in grazing management are proposed for Alternatives A and B, no impacts would be expected.

### *Riparian Zones*

Much of the current poor condition of riparian zones is the result of past overgrazing of watersheds, road building, mining, and early farming practices. Currently, cattle cause most of the grazing-related impacts.

Several factors cause cattle to concentrate in riparian zones, especially in the spring and early summer. These include availability of desirable forage, limitations on livestock movement imposed by steep slopes, and erratic distribution of watering areas away from streamsides. Therefore, vegetation in riparian areas is much more heavily utilized than that of surrounding upland areas. Studies have shown that a riparian zone constituting 1 or 2 percent of an area and 21 percent of the available forage can account for 81 percent of the total herbaceous vegetation removed by livestock (Roath and Krueger, 1982).

It is expected that there would be little or no change in the condition of any riparian zone under Alternatives A, B, D, or E. This is because no fencing or changes in the period of use for cattle are proposed to protect or change the pattern of use in riparian areas. Under Alternative C, livestock grazing would be eliminated from Crescent Creek, Nasty Flat, Pennell, and Sawmill Basin Allotments. These are all bison use areas; however, bison do not concentrate in riparian zones to the extent that cattle do (Van Vuren, 1979b). Therefore, improvement in the condition of riparian zones on these allotments could be anticipated under Alternative C.

### **Conclusion**

Forage production and ecological condition would be adversely affected by vegetation overutilization on 14 percent of the area under Alternative A and on 56 percent of the area under Alternative B.

Under Alternatives C, D, and E, trend in ecological condition would remain static or go up slightly in the short term. While short-term overutilization would occur in localized areas, this would not cause any detectable adverse impacts. In the long term, a corresponding increase in ground cover, improved vigor in key forage plants, and an increase in the percent composition of the more desirable plant species would occur. No increase in grazing capacity would be expected in the short term. Small increases could be expected over the long term.

Land treatment measures, primarily chaining and seeding and/or burning and seeding, could be expected to show more dramatic results in both the



short and long terms. The productivity of rangeland forage could be expected to increase as much as 10 times in pinyon-juniper, sagebrush, and Gambels oak areas. Ground cover would be disturbed during the early implementation stages (1-2 years), and grazing capacity for livestock would be lost during the years required for rest. This is especially true following burning. Within 3 years, however, ground cover would be more widely dispersed and equal to or exceeding cover prior to treatment.

Additional AUMs from land treatments on nine allotments and one unallotted area, totaling 24,300 acres, would be added in the long term. Increases in AUMs would be divided as follows:

Alternative C. 423 for livestock and 2,552 for big game, totaling 2,975 AUMs.

Alternative D. 2,975 for livestock.

Alternative E. 2,415 for livestock and 560 for big game, totaling 2,975 AUMs.

In the long term, forage production would gradually decrease as invading pinyon-juniper and brush replaced desirable seeded species. At this time it would be necessary to reburn or rechain these areas.

## SOILS

### Erosion

#### ALTERNATIVE A: PROPOSED ACTION—NO CHANGE

Anticipated impacts on soils would be caused by changes in ground cover and soil surface disturbance. Studies indicate that heavy grazing has an impact on erosion and sediment yield (Gifford, 1975). As vegetation ground cover decreased, erosion would generally increase. This could occur on portions of 11 allotments and one unallotted area where grazing capacity was exceeded (see Table 4-1 and the Vegetation section, Chapter 4). Table 3-5 shows the present erosion condition of all allotments. Some of the current erosion condition is caused by the geologic or inherent nature of the soil to erode and is not affected by livestock or big game grazing.

#### ALTERNATIVE B: NO ACTION

Impacts to soils would be similar to those described in Alternative A. Increased erosion could occur on portions of 21 allotments and one unallotted area where grazing capacity would be exceeded (see Table 4-1 and the Vegetation section of this chapter).

#### ALTERNATIVE C: OPTIMIZE BIG GAME

Severe overgrazing must generally occur before significant changes in erosion can be observed (Smeins, 1975). In this alternative, grazing capacity would be exceeded only in the short term on five allotments and one unallotted area; therefore, any increase in erosion caused by grazing would be minimal.

Land treatments are proposed on nine allotments and one unallotted area, totaling 24,300 acres (see Table 2-4). This could result in a temporary increase in erosion from surface disturbance. Studies in southern Utah found that chaining treatments where debris was left in place did not increase sediment yield (Buckhouse and Gifford, 1976). Planned burning in the sagebrush-grass areas of the intermountain area where soils are fairly firm and the slopes less than 30 percent show slight soil losses, and soil movement has been arrested almost completely by the end of the first spring (Vallentine, 1974). Therefore, no significant increase in erosion is expected. In the long term, erosion would be further reduced as vegetation became reestablished on the 24,300 acres receiving land treatments.

#### ALTERNATIVE D: OPTIMIZE LIVESTOCK

Impacts to soils in this alternative would be the same as discussed in Alternative C.

#### ALTERNATIVE E: PREFERRED ALTERNATIVE—PLANNING RECOMMENDATION

Impacts to soils in this alternative would be the same as discussed in Alternative C.

## Conclusion

The proposed land treatments on 24,300 acres for Alternatives C, D, and E would result in a beneficial impact to the soils resource because increased vegetation cover would decrease erosion. Alternative A could result in increased erosion on about 14 percent of the planning area where overgrazing occurred. Alternative B could result in adverse impacts to soils where overgrazing could contribute to increased erosion on about 56 percent of the planning area.



## WATER RESOURCES

### Alternative A: Proposed Action—No Change

Impacts to the water resource interrelate closely with soils. Where surface disturbance and reduced vegetation occurs, soil erosion rates and sediment yield are affected which, in turn, affect water quality and yield.

Grazing capacity would be exceeded on portions of 11 allotments and one unallotted area (see Table 4-1 and the Vegetation section of this chapter). This would leave more soil exposed to higher sediment yield and surface runoff on about 14 percent of the planning area. Some deterioration of surface water quality in the vicinity of these allotments could occur.

Numerous studies have shown that moderate and heavy grazing results in increased runoff (Smeins, 1975). This increase in water yield would be expected in the steeper mountain portions. No significant impact on water yield from the drier portions of the planning area would be expected. A study conducted in the planning area by Guisti (1977) found that increased runoff resulting from soil disturbance during construction dissipated a short distance from the site.

### Alternative B: No Action

Impacts to the water resource would be as described in Alternative A, except portions of 21 allotments and one unallotted area would be affected where grazing capacity was exceeded (see Table 4-1 and the Vegetation section of this chapter). Sediment yield could increase on about 56 percent of the planning area, decreasing surface water quality from overland flow.

### Alternative C: Optimize Big Game

There could be a short-term, localized decrease to surface water quality from disturbance caused by land treatments on nine allotments and one unallotted area (see Table 2-4). In the long term, sediment yield would decrease as vegetation became reestablished. Water quality would improve and surface runoff would be reduced on nine allotments and one unallotted area (24,300 acres).

### Alternative D: Optimize Livestock

Impacts to the water resource would be similar to those described in Alternative C.

### Alternative E: Preferred Alternative—Planning Recommendation

Impacts to the water resource would be similar to those discussed in Alternative C.

## Conclusion

Alternatives C, D, and E would result in a beneficial impact to water resources because land treatments on 24,300 acres would increase vegetation cover, thereby decreasing sediment yield and improving surface water quality. Alternative A could cause a decrease in surface water quality as sediment yield increased on portions of 11 allotments and one unallotted area. Under Alternative B, surface water quality would decrease on 21 allotments and one unallotted area. This would result from decreased vegetation cover caused by overgrazing.

## ANIMAL LIFE

### Deer

Mule deer numbers on the Henry Mountains have been at a low, static condition for the past 15 years. Productivity data show that this herd unit is one of the lowest in the State of Utah. Preseason classification data show that the 10-year average for this herd is only 61 fawns/100 does as compared to a state average of 77 fawns/100 does (Utah Division of Wildlife Resources [UDWR], 1981a). In an attempt to determine those factors influencing deer productivity on the Henry Mountains, Pederson and Harper (1978) conducted a study comparing this herd unit with the highly productive LaSal Mountain unit. Of all the factors studied (i.e., disease, parasites, harvest rates, predation, and rangeland condition), only summer range condition differed significantly between the two mountain areas. Data showed that forage on the LaSal summer ranges was composed of over 50 percent forbs whereas forbs made up only 12 percent of the forage on comparable ranges in the Henrys. In addition, summer ranges on the LaSal Mountains produced 7 times more forb biomass: 1,117 kilograms per hectare (kg/ha) of fresh weight forbs as compared to 158 kg/ha on Henry Mountain summer ranges. Because forbs are an important source of crude protein, the authors speculated that "the shrub-dominated forage of the Henry Mountain summer ranges may be deficient in protein." The authors concluded that: "The characteristics of the forage found on the summer range, especially the quantity and quality of forbs, exert important influences on the productivity of these herds." (Pederson and Harper, 1978). Other



reasons for decline in deer numbers were associated with road construction (access) and heavy hunting pressures.

The importance of forbs in a deer's summer diet has been reported (Kufeld et al., 1973). Because forbs are easily digested and high in crude protein content and other important nutrients (Cook, 1972; Harner and Harper, 1973; and Pieper and Beck, 1980), they contribute significantly to the nutritional status of deer during the summer, especially to fawns and lactating does. Therefore, because of Pederson's and Harper's (1978) earlier work and because the literature clearly shows that good summer range greatly influences such productivity factors as breeding success (Julander et al., 1961), fetus and ovulation production rates (Longhurst et al., 1952; Julander et al., 1961), fawn survival (Yoakum, 1965), the ability of lactating does to produce milk (Verme, 1962), and growth rates and body size (Severinghaus and Cheatum, 1956; Swank, 1958), an analysis of mule deer summer diets was conducted, based on the soil-vegetation inventory (USDI, BLM and Earth Environmental Consultants, 1980).

This analysis showed that, to meet the proposed deer AUM requirements for each alternative, diets containing an average of 90 percent shrubs had to be provided. This percentage of browse species in a deer's summer diet is considerably higher than that reported in the literature (Goodwin, 1975; Smith, 1952). In addition, much of the forage inventoried was comprised of low quality browse such as piñon, juniper, and Oregon grape. Forbs and grass comprised an average of only 6 and 4 percent of the diets, respectively. The most predominant forbs were alfalfa, penstemon, and lupines, while the most predominant grasses were crested wheatgrass, bluegrass, and fescue.

Because these initial diets overestimated the amount of forage available, seasonal limitations on the amounts of browse, forbs, and grass allowed in deer diets were developed. These "target diets" were based upon published food habit studies (Kufeld et al., 1973; Trout and Thiessen, 1968; and Goodwin, 1975).

In addition to species composition, a rough analysis of the crude protein content of inventoried diets was conducted using values published by Cook (1972). This analysis showed that the diets inventoried averaged about 9 percent crude protein. This value is slightly lower than the value determined necessary by Hill (1969) for proper growth of mature mule deer. In addition, because of the low digestibility of shrubs and disproportionate amount in these diets, it is doubtful that Henry Mountain deer, espe-

cially fawns and lactating does, could get enough protein to meet their daily summer requirements. This also confirms Pederson's and Harper's suspicion that the Henry Mountain summer ranges are deficient in protein.

In summary, the analysis of inventory data confirms: (1) Pederson's and Harper's findings that crucial deer summer range on the Henry Mountains is dominated by low quality shrubs; (2) these ranges are deficient in protein because of a lack of nutritious forbs and, therefore, herd productivity is low; (3) the summer diets inventoried are nutritionally deficient because of poor quality forage; and (4) unless there is a significant change from a shrub-dominated to a more perennial forb-and-grass vegetation type (good ecological condition), these ranges will remain poor quality deer summer habitat.

Because deer numbers are at a low, static level and crucial summer range is the major factor limiting deer productivity and numbers, any proposed alternative that would maintain and/or further degrade the grazing capacity of this range must be considered adverse to the deer herd.

In 1974, a total of 4,800 AUMs on BLM lands were allocated to deer (USDI, BLM, 1974). Of this total, nearly 1,084 AUMs were allocated on BLM lands to deer on crucial summer ranges. This allocation was based on a 1962-63 range survey conducted by BLM which assigned proper use factors (PUFs) to determine the maximum allowable seasonal utilization of forage by big game and livestock. Based on a conversion factor of 5.8 deer/AUM (Stoddart and Smith, 1955), an allocation of 4,800 AUMs should have provided sufficient forage to support a total yearlong deer population of 2,320 animals on the planning area. Population and trend data suggest, however, that total deer numbers have remained relatively static and that current numbers on the planning area are estimated to be 52 percent (1,211 animals) of that provided for in the 1974 decision document. This difference becomes even more evident on crucial summer ranges where current deer numbers on BLM lands are estimated to be only 34 percent of that provided for in the 1974 decision (362 animals as compared to 1,050).

These data, along with the earlier findings of Pederson and Harper (1978), suggest that allocations based solely on the quantity of available forage as determined by PUFs, without regard to such factors as (1) the seasonal dietary requirements of an animal; (2) the nutritional quality of the allocated forage; and (3) forage competition factors, overestimate the number of nutritionally suitable AUMs available to deer, especially on crucial summer ranges. In addition, other factors such as the ecolo-



gical condition of the range, poor livestock distribution, and the proximity of escape and cover habitats to feeding areas can also greatly affect the amount of suitable forage available to big game species.

If it is assumed that current deer numbers are reflective of the grazing capacity on crucial summer ranges, then only approximately 34 percent of the total AUMs provided to mule deer can be assumed nutritionally adequate to support deer and/or are useable to them.

These data show that the grazing capacity is far below what has been identified; therefore, a 34-percent adjustment factor will be used throughout the deer analysis on crucial summer ranges only. This adjustment will better assess the impacts of each alternative to present and future deer numbers.

Inventory data show that the quantity and quality of forage on crucial winter ranges should not be a limiting factor for Henry Mountain deer populations. Approximately 28,265 acres (69 percent) are in a mid seral stage and are considered good deer winter range. In addition, in their comparison study between the highly productive LaSal Mountains and the Henrys, Pederson and Harper (1978) stated: "...although Henry Mountain winter ranges are somewhat drier and less productive (about 20 percent less yield than on the LaSal Mountains), forage quality and plant vigor actually appear to be slightly better than on the LaSals."

Because these data suggest that inventoried AUMs on crucial winter ranges are of sufficient quantity and quality to meet a deer's seasonal dietary requirements for each alternative, no adjustments to these figures will be made.

#### **ALTERNATIVE A: PROPOSED ACTION—NO CHANGE**

##### ***Crucial Summer Range***

Under this alternative, active livestock preference on eight allotments containing crucial summer range would be reduced from 22,708 AUMs to the average licensed use level of 12,849 AUMs. Of this amount, 212 sheep AUMs would be used intermittently (see Table 2-2).

Current deer use on these crucial ranges is estimated at 374 AUMs. However, only 127 of these AUMs are considered nutritionally adequate or useable to mule deer (see Table 4-3).

Therefore, because: (1) deer numbers have remained at a low, static level under average licensed

livestock use; (2) summer range is considered a major factor limiting deer populations on the Henry Mountains; and (3) competition for high quality summer forage between livestock and deer would not decrease, no change in deer herd numbers or productivity would be expected under this alternative.

##### ***Crucial Winter Range***

Active livestock preference on seven allotments containing crucial winter range would be reduced from 20,887 AUMs to the average licensed use level of 11,952 AUMs. Of this amount, 204 sheep AUMs would be used intermittently (see Table 2-2).

Current deer use on these crucial ranges is estimated at 231 AUMs, or approximately 15 percent of the total AUMs needed to satisfy prior stable deer forage requirements (see Figure 4-2).

Because crucial winter range is not considered a major factor limiting herd size and because there is sufficient forage to meet current deer numbers, this alternative should not affect the Henry Mountain deer herd in the winter.

#### **ALTERNATIVE B: NO ACTION**

##### ***Crucial Summer Range***

Deer would be provided existing reservations of 1,084 AUMs on eight allotments containing crucial summer range. However, only 368 AUMs are considered nutritionally suitable/useable to deer during the summer (see Table 4-3). Therefore, this alternative would provide approximately 16 percent of the total AUMs needed to meet prior stable deer forage requirements on crucial summer range (see Figure 4-2).

Under this alternative, livestock use on seven allotments containing crucial summer range would increase to active preference (22,708 AUMs). This would represent an increase of 9,859 AUMs over the average licensed livestock use.

This alternative could adversely impact deer by decreasing their numbers and productivity because: (1) an increase in livestock use on crucial summer deer range would increase competition for highly nutritious forage; (2) crucial summer range is considered a major factor limiting deer populations; and (3) deer numbers are low under current grazing levels.

##### ***Crucial Winter Range***

Deer would be provided existing reservations of 496 AUMs on seven allotments containing crucial winter range (see Table 4-4). This is 265 more than the 231 AUMs needed to satisfy current deer numbers on crucial winter range (see Figure 4-2).



TABLE 4-3

Allotment Analysis of Nutritionally Suitable Deer Forage  
on Crucial Summer Range<sup>a</sup> (AUMs)

Allotments	Alternative				
	A <sup>b</sup>	B <sup>b</sup>	C <sup>b</sup>	D <sup>b</sup>	E <sup>b</sup>
Burr Point	1	3	1	1	0
Crescent Creek	26	73	85	26	85
Dry Lakes <sup>c</sup>	18	44	42	18	42
Nasty Flat	19	73	56	18	44
Pennell	25	66	156	25	124
Rockies	4	16	2	2	2
Sawmill Basin	30	73	72	30	47
Trachyte	4	20	9	4	8
Total AUMs	127	368	423	124	352

Source: Figures are derived from the soil-vegetation inventory conducted by USDI, BLM and Earth Environmental Consultants, Inc. (1980).

<sup>a</sup>Includes only BLM-administered lands.

<sup>b</sup>Adjusted by 0.34 to account for poor quality forage on crucial summer range.

<sup>c</sup>Unallotted area.

TABLE 4-4

Allotment Analysis of Nutritionally Suitable Deer Forage  
on Crucial Winter Range<sup>a</sup> (AUMs)

Allotments	Alternative				
	A	B	C	D	E
Blue Bench	1	4	5	1	5
Bullfrog	22	37	143	22	143
Cedar Point	33	59	54	33	34
Nasty Flat	6	18	6	6	5
Pennell	88	186	303	88	167
Steele Butte	54	125	189	54	188
Trachyte	27	67	165	27	148
Total AUMs	231	496	865	231	690

Source: Figures are derived from the soil-vegetation inventory conducted by USDI, BLM and Earth Environmental Consultants, Inc. (1980).

<sup>a</sup>Includes only BLM-administered lands.



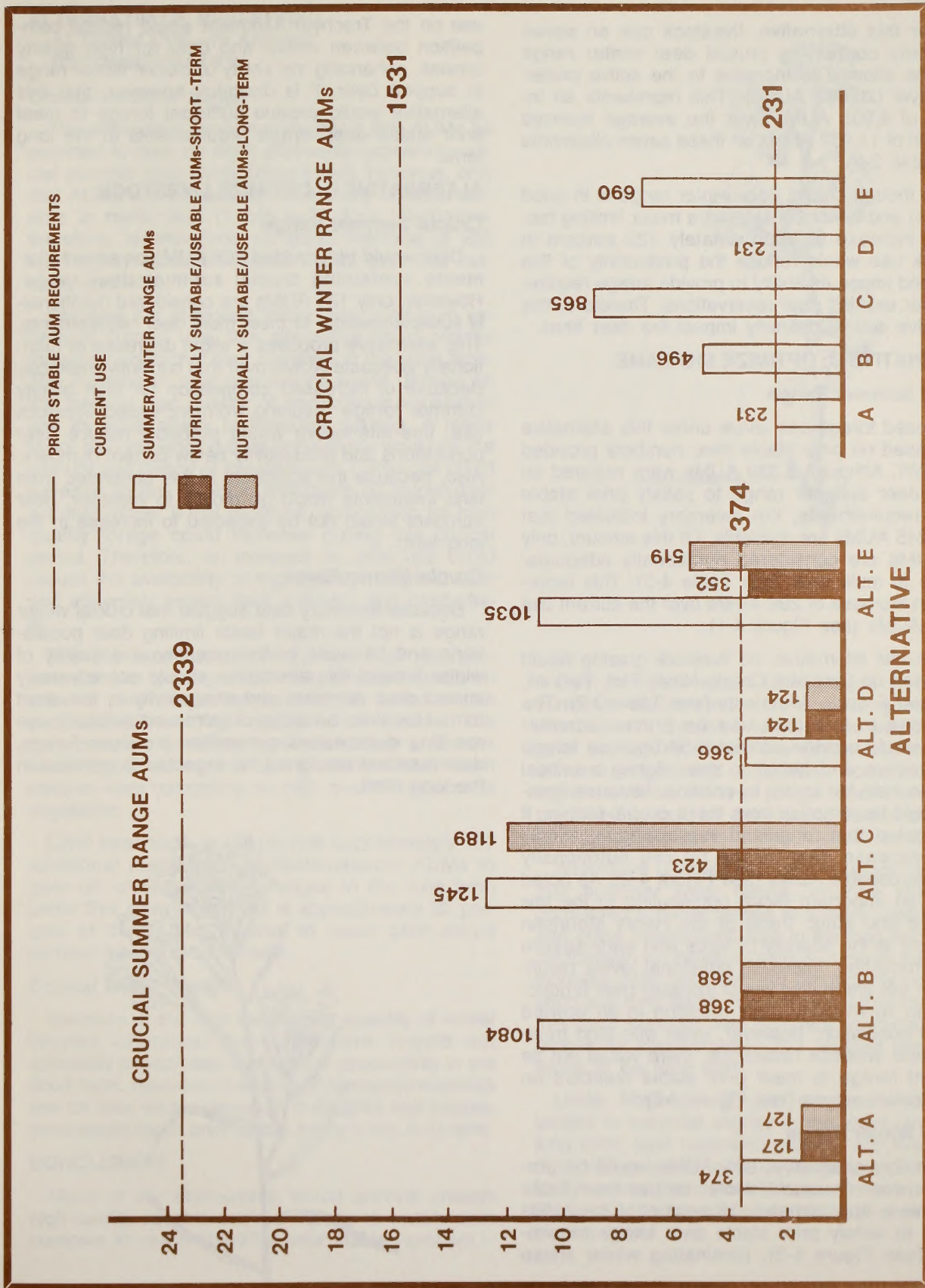


FIGURE 4-2  
MULE DEER SUMMER AND WINTER RANGE FORAGE AUMs



Under this alternative, livestock use on seven allotments containing crucial deer winter range would be allowed to increase to the active preference level (20,887 AUMs). This represents an increase of 8,935 AUMs over the average licensed use level of 11,952 AUMs on these seven allotments (see Table 2-2).

Even though crucial deer winter range is in good condition and is not considered a major limiting factor, an increase of approximately 122 percent in livestock use would reduce the productivity of this range and impair its ability to provide forage requirements for existing deer reservations. Therefore, this alternative could adversely impact the deer herd.

### ALTERNATIVE C: OPTIMIZE BIG GAME

#### *Crucial Summer Range*

Proposed forage use levels under this alternative were based on prior stable deer numbers provided by UDWR. Although 2,339 AUMs were required on crucial deer summer range to satisfy prior stable forage requirements, the inventory indicated that only 1,245 AUMs are available. Of this amount, only 423 AUMs are considered nutritionally adequate/useable to mule deer (see Table 4-3). This represents an increase of 296 AUMs over the current use of 127 AUMs (see Figure 4-1).

Under this alternative, no livestock grazing would be allowed on Crescent Creek, Nasty Flat, Pennell, and Sawmill Basin Allotments (see Table 2-2). The reductions in livestock use on crucial summer ranges would provide additional herbaceous forage (i.e., grasses and forbs) to deer during a critical period in their life cycle. In addition, because livestock would be removed from these crucial ranges, it is estimated that rangeland improvement projects would increase deer forage by 766 nutritionally adequate/useable AUMs (see Figure 4-2). As noted earlier, an important factor contributing to the low numbers and static trend of the Henry Mountain deer herd is the scarcity of forbs and early-season grass production. Improved nutritional levels resulting from this alternative would increase deer productivity and survivability, thus resulting in an upward trend in population. However, even with land treatments and livestock reductions, there would not be sufficient forage to meet prior stable numbers on these crucial ranges (see Figure 4-2).

#### *Crucial Winter Range*

Under this alternative, 865 AUMs would be provided to deer on crucial winter ranges (see Table 4-4). This is approximately 56 percent of the AUMs needed to satisfy prior stable deer forage requirements (see Figure 4-2). Eliminating winter sheep

use on the Trachyte Allotment would reduce competition between sheep and deer for high quality browse, enhancing the ability of crucial winter range to support deer. It is doubtful, however, that this alternative would provide sufficient forage to meet prior stable deer forage requirements in the long term.

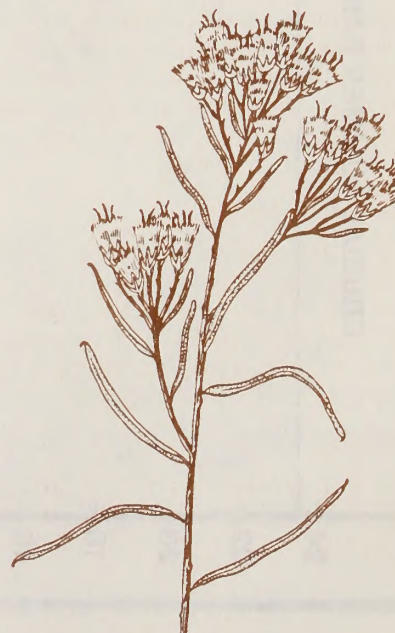
### ALTERNATIVE D: OPTIMIZE LIVESTOCK

#### *Crucial Summer Range*

Deer would be provided 366 AUMs on seven allotments containing crucial summer deer range. However, only 124 AUMs are considered nutritionally suitable/useable to meet mule deer requirements. This alternative proposes a slight decrease of nutritionally adequate AUMs over that currently available. Because of increased competition for high quality summer forage resulting from increased livestock use, this alternative would probably reduce deer populations and productivity below current numbers. Also, because the additional AUMs generated from land treatments would go mostly to livestock, deer numbers would not be expected to increase in the long term.

#### *Crucial Winter Range*

Because inventory data suggest that crucial winter range is not the major factor limiting deer populations and because of the quantity and quality of winter forage, this alternative should not adversely impact deer numbers and productivity in the short term. However, because of increased livestock use resulting in increased competition for winter forage, deer numbers would not be expected to increase in the long term.





**ALTERNATIVE E: PREFERRED  
ALTERNATIVE—PLANNING  
RECOMMENDATION**

***Crucial Summer Range***

This alternative recommends that 1,035 AUMs be provided to deer on eight allotments containing crucial summer deer range (Figure 4-2). However, only 352 AUMs are considered nutritionally suitable/useable to mule deer (Table 4-3). This alternative, therefore, recommends an actual increase of 225 nutritionally suitable/useable AUMs over that currently available.

Because the proposed forage use level is in excess of current use, this alternative could provide forage for additional deer numbers in the short term. The increase in deer populations would depend on the amount and quality of herbaceous vegetation and its accessibility to livestock grazing. A major factor also influencing deer populations would be the amount and period of livestock use. Cattle use could increase on five of seven allotments on crucial deer summer range. If this occurred, competition for high quality forage could increase during this critical period. Therefore, an increase in cattle use could reduce the availability of high quality forage to deer and adversely impact deer numbers and productivity.

With the exception of the Pennell Allotment, proposed sheep grazing would have limited impacts on summer deer ranges because of the period of use and availability of high quality winter browse. The only possible conflicts between sheep and deer would occur during the spring months when both species were competing for high quality herbaceous vegetation.

Land treatments would provide approximately 167 additional nutritionally suitable/useable AUMs to deer on crucial summer ranges in the long term under this alternative. This is approximately 22 percent of the AUMs required to reach prior stable number forage requirements.

***Crucial Winter Range***

Because of the high quality and quantity of winter browse available, this alternative should not adversely impact deer numbers or productivity in the short term. However, because of increased livestock use on deer winter ranges, it is doubtful that populations would reach prior stable levels in the long term.

**CONCLUSION**

None of the alternatives would provide enough high quality useable summer forage to enable deer numbers to reach UDWR's prior stable numbers.



Antelope bitterbrush

Deer numbers would be expected to remain at current levels both in the short and long terms under Alternative A. Because livestock use would increase over average licensed use (especially on crucial summer ranges) and competition would increase for highly nutritious summer forage, deer numbers and productivity would be expected to decline both in the short and long terms under Alternatives B and D.

Alternative C would eliminate livestock use on crucial summer deer range, change the shrub-dominated summer ranges to a more perennial forb-and-grass vegetational type in the long term, reduce competition for highly nutritious summer forage, and increase deer numbers and productivity both in the short and long terms. It is estimated that this alternative could increase deer numbers on crucial summer ranges by approximately 793 animals over current levels in the long term.

Under Alternative E, deer numbers would be expected to increase slightly in the short term. In the long term, land treatment projects and livestock reductions on crucial summer ranges, resulting in less forage competition, would increase deer numbers on these ranges by approximately 300 animals over current levels.



TABLE 4-7

Short-Term Allotment Analysis of Bison Forage  
on Crucial Yearlong Range (AUMs)

Allotments	Alternative				
	A	B	C	D	E
Dry Lakes <sup>a</sup>	27	125	11	0	36
Nasty Flat	228	208	218	0	228
Pennell	376	347	777	0	373
Steele Butte	7	19	7	0	7
Total AUMs	638	699	1,013	0	644

Source: Figures are derived from the soil-vegetation inventory conducted by USDI, BLM and Earth Environmental Consultants, Inc. (1980).

<sup>a</sup>Unallotted area.

## Bison

Research on bison diets indicates that these animals are almost exclusively dependent on grass and use only small amounts of forbs and browse. However, much of the research has been conducted in a plains or prairie environment where grass is the dominant vegetation. There has been limited documentation of bison diets in habitats where grass is a minor part of the vegetation composition on some of the seasonal ranges, as is the situation with the Henry Mountain bison herd (Van Vuren, 1979b).

Although rumen samples are most helpful in identifying plant species eaten by grazing animals, they are not an accurate method of determining dietary composition: forbs are underestimated or lost entirely and grasses are generally overestimated (McInnis, 1977).

Preliminary data from fecal and rumen samples taken from the Henry Mountain herd suggest that these animals use grass as the major component of their diets, despite its limited availability on all but seeded areas. Most of the fecal samples analyzed for dietary composition were taken from seeded range and could be expected to contain high amounts of grass. These diets showed a composition (corrected for underestimation of forbs) of 82 percent grass, 16 percent forbs, and 2 percent browse (Van Vuren and Bray, 1983).

Nelson (1965) studied dietary composition of rumen samples collected from desert and foothill ranges on the Henry Mountains in the late fall and

winter months during 1961-64. He made the general observations that grass comprised the bulk of the diet and that the relative amount of browse was greater in the winter months than in the summer, although browse was only a minor component during either season.

Rumen sample analysis of bison killed during the 1980 hunt showed very low percentages of browse in their diets, with most animals under 5 percent. However, some individuals showed a diet of over 20 percent browse (USDI, BLM, 1981b). Some animals were killed on seedings while others were killed on areas where browse was the dominant vegetation. It was not possible to correlate grass availability with percentage of grass in the diet because it was not known how long the animals had been in the area where they were killed.

In conclusion, it appears that the Henry Mountain bison herd has retained its grazing nature in a habitat where browse species often dominate much of the seasonal range. Fecal studies on samples collected from seeded range show browse to be a very minor (<5 percent) component of bison diets. The percentage of forbs in these diets (16 percent) is somewhat higher than in other reports, but is attributable to the high palatability of alfalfa present in the seedings. The amount of browse in the diets of individuals killed on winter range has been as high as 23 percent. In the absence of sufficient quantitative diet analysis, it is difficult to conclusively determine the reasonable maximum use of browse in bison diets. The fact that bison thrive in a habitat





that includes seasonal ranges dominated by browse suggests that some dietary adjustment to include relatively more browse has been made, and that perhaps a dietary composition of 10 percent browse could be expected on certain ranges during certain times of the year.

Tables 4-5, 4-6, and 4-7 list the short-term bison AUM requirements on crucial summer, winter, and yearlong ranges, respectively, by alternative. It is assumed that these AUMs are of sufficient quality to meet the dietary requirements of bison on the Henry Mountains. Figure 4-3 shows current use as well as long-term AUM projections for bison crucial ranges, by alternative.

#### **ALTERNATIVE A: PROPOSED ACTION—NO CHANGE**

Under this alternative, current bison use would be 274 AUMs in excess of forage availability (133 AUMs on crucial winter range and 141 AUMs on crucial yearlong range) (Table 2-2). In addition, livestock grazing would exceed grazing capacity on five allotments containing crucial bison ranges (Sandy 2, Steele Butte, Trachyte, Crescent Creek and Nasty Flat Allotments) (see Table 4-1). Under these grazing levels, it is expected that crucial bison ranges would deteriorate. The short-term effect of this alternative on bison would be slight. However, bison numbers would be expected to decline in the long term because of overgrazing and competition for forage with livestock, especially during the winter.

#### **ALTERNATIVE B: NO ACTION**

Under this alternative, livestock use on 11 allotments containing crucial bison ranges would exceed grazing capacity (Table 4-1). In addition, yearlong bison use would exceed indicated grazing capacity

on Dry Lakes unallotted area and Steele Butte Allotment, while bison winter use would exceed grazing capacity on the Pennell Allotment. Because of competition and overutilization, this alternative would be expected to significantly reduce bison numbers in the short term (Figure 4-3).

#### **ALTERNATIVE C: OPTIMIZE BIG GAME**

Under this alternative, bison use would be 3,768 AUMs, 156 percent of current use (2,412 AUMs). Livestock grazing would be eliminated on four allotments containing crucial summer, winter, and yearlong range (Table 2-2). Eliminating livestock use on these crucial ranges would provide additional forage to bison. It is expected that this forage, in addition to the AUMs provided by land treatments, would allow bison numbers to increase to UDWR's long-term management goals (see Figure 4-3).

#### **ALTERNATIVE D: OPTIMIZE LIVESTOCK**

Because of the competition between cattle and bison for forage, this alternative provides no forage for bison. Therefore, the bison herd would be eliminated.

#### **ALTERNATIVE E: PREFERRED ALTERNATIVE—PLANNING RECOMMENDATION**

Forage provided for bison would be reduced by 301 and 29 AUMs below current use levels on crucial summer and winter ranges, respectively. However, because of the additional AUMs provided from land treatments, sufficient forage would be made available to prevent overgrazing by bison on these ranges in the long term (Table 2-4). However, overgrazing (118 AUMs) would still occur on crucial winter range (Table 2-2). Because winter range is considered the major factor limiting the herd, bison numbers would not be expected to meet existing numbers under this alternative. It is important to note that the bison herd would be managed at a post hunt herd size of 200 yearling and adult animals agreed between UDWR and BLM.

#### **CONCLUSION**

Alternative C is the only alternative that would meet both the short- and long-term UDWR management goals for bison without overutilizing the range. Alternatives A and E would maintain current herd size in the short term; however, both alternatives would decrease bison numbers in the long term. Alternative B would result in significant rangeland deterioration and greatly reduced bison numbers, while Alternative D would result in extirpation of the bison herd.



# CHAP. 4 — ENVIRONMENTAL CONSEQUENCES

TABLE 4-5

Short-Term Allotment Analysis of Bison Forage  
on Crucial Summer Range (AUMs)

Allotments	Alternative				
	A	B	C	D	E
Blue Bench	5	16	5	0	4
Burr Point	15	13	28	0	15
Cedar Point	8	10	5	0	6
Crescent Creek <sup>a</sup>	65	55	159	0	55
Dry Lakes	73	65	100	0	52
Hanksville	18	16	35	0	18
Nasty Flat	457	404	652	0	348
Pennell	576	569	1,194	0	456
Sandy 2	17	10	33	0	17
Sawmill Basin	146	131	133	0	114
Steele Butte	17	15	34	0	17
Trachyte	20	11	20	0	14
Total AUMs	1,417	1,315	2,398	0	1,116

Source: Figures are derived from the soil-vegetation inventory conducted by USDI, BLM and Earth Environmental Consultants, Inc. (1980).

<sup>a</sup>Unallotted area.

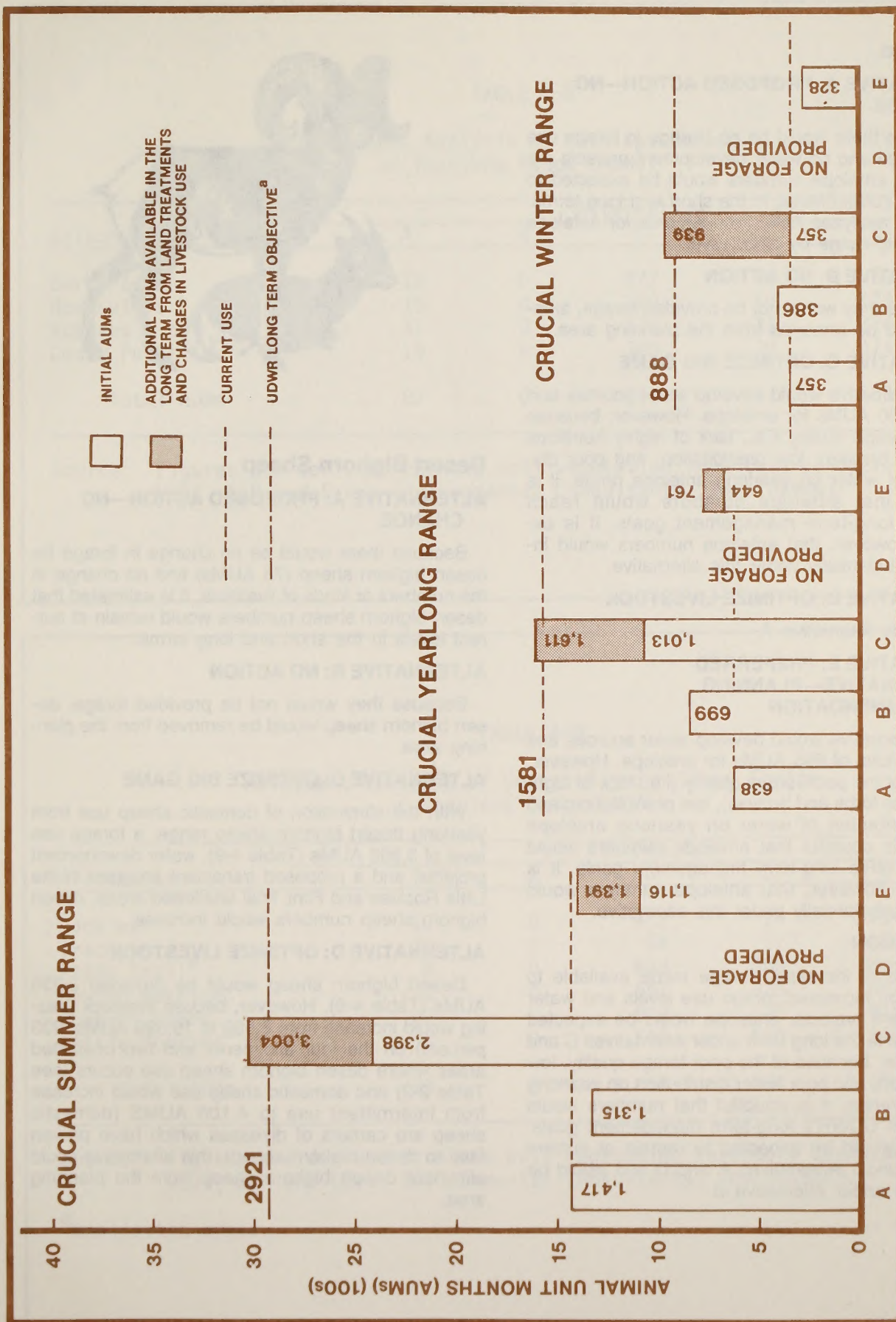
TABLE 4-6

Short-Term Allotment Analysis of Bison Forage  
on Crucial Winter Range (AUMs)

Allotments	Alternative				
	A	B	C	D	E
Bullfrog	74	36	74	0	45
Pennell	0	10	0	0	0
Sandy 2	105	120	105	0	105
Steele Butte	178	220	178	0	178
Total AUMs	357	386	357	0	328

Source: Figures are derived from the soil-vegetation inventory conducted by USDI, BLM and Earth Environmental Consultants, Inc. (1980).





<sup>a</sup> AUMs IN EXCESS OF UDWR LONG-TERM OBJECTIVES WOULD BE AVAILABLE AFTER ACHIEVEMENT OF OBJECTIVE NUMBERS, BE AVAILABLE FOR ALLOCATION TO OTHER ANIMALS, TO INCLUDE LIVESTOCK.

# ALTERNATIVE

FIGURE 4-3

## BISON FORAGE AUMs ON CRUCIAL RANGES



## Antelope

### ALTERNATIVE A: PROPOSED ACTION—NO CHANGE

Because there would be no change in forage use for antelope and no water development projects are proposed, antelope numbers would be expected to remain at current levels in the short and long terms. Table 4-8 analyzes AUM requirements for antelope on yearlong range by alternative.

### ALTERNATIVE B: NO ACTION

Because they would not be provided forage, antelope would be removed from the planning area.

### ALTERNATIVE C: OPTIMIZE BIG GAME

This alternative would develop water sources and provide 960 AUMs for antelope. However, because of poor forage quality (i.e., lack of highly nutritious forbs and browse), low precipitation, and poor distribution of water on yearlong antelope range, it is doubtful that antelope numbers would reach UDWR's long-term management goals. It is expected, however, that antelope numbers would increase substantially under this alternative.

### ALTERNATIVE D: OPTIMIZE LIVESTOCK

Same as Alternative A.

### ALTERNATIVE E: PREFERRED ALTERNATIVE—PLANNING RECOMMENDATION

This alternative would develop water sources and provide a total of 695 AUMs for antelope. However, because of the poor forage quality (i.e., lack of highly nutritious forbs and browse), low precipitation, and poor distribution of water on yearlong antelope range, it is doubtful that antelope numbers would reach UDWR's long-term management goals. It is expected, however, that antelope numbers would increase substantially under this alternative.

### CONCLUSION

Because of increased forage made available to antelope by increased forage use levels and water development projects, antelope would be expected to increase in the long term under Alternatives C and E. However, because of the poor forage quality, low precipitation, and poor water distribution on yearlong antelope range, it is doubtful that numbers would ever reach UDWR's long-term management goals. Antelope would be expected to remain at current numbers under Alternatives A and D and would be eliminated under Alternative B.



## Desert Bighorn Sheep

### ALTERNATIVE A: PROPOSED ACTION—NO CHANGE

Because there would be no change in forage for desert bighorn sheep (75 AUMs) and no change in the numbers or kinds of livestock, it is estimated that desert bighorn sheep numbers would remain at current levels in the short and long terms.

### ALTERNATIVE B: NO ACTION

Because they would not be provided forage, desert bighorn sheep would be removed from the planning area.

### ALTERNATIVE C: OPTIMIZE BIG GAME

With the elimination of domestic sheep use from yearlong desert bighorn sheep range, a forage use level of 3,968 AUMs (Table 4-9), water development projects, and a proposed transplant program in the Little Rockies and Flint Trail unallotted areas, desert bighorn sheep numbers would increase.

### ALTERNATIVE D: OPTIMIZE LIVESTOCK

Desert bighorn sheep would be provided 2,336 AUMs (Table 4-9). However, because livestock grazing would increase from 8,550 to 19,899 AUMs (233 percent) on the four allotments and two unallotted areas where desert bighorn sheep use occurs (see Table 2-2) and domestic sheep use would increase from intermittent use to 4,108 AUMs (domestic sheep are carriers of diseases which have proven fatal to desert bighorn sheep), this alternative could eliminate desert bighorn sheep from the planning area.



TABLE 4-8

Allotment Analysis of Antelope Forage  
on Yearlong Range (AUMs)

Allotments	Alternative				
	A	B	C	D	E
Burr Point	18	0	277	18	18
Hanksville	19	0	129	19	129
Robbers Roost	31	0	374	31	374
Cedar Point	19	0	180	19	174
Total AUMs	87	0	960	87	695

Source: Figures are derived from the soil-vegetation inventory conducted by USDI, BLM and Earth Environmental Consultants, Inc. (1980).

TABLE 4-9

Allotment Analysis of Desert Bighorn Sheep Forage  
on Yearlong Range (AUMs)

Allotments	Alternative				
	A	B	C	D	E
Rockies	16	0	832	16	794
Trachyte	16	0	64	17	64
Flint Trail <sup>a</sup>	0	0	808	808	808
Sewing Machine	21	0	897	925	897
Robbers Roost	22	0	819	22	819
Little Rockies <sup>a</sup>	0	0	548	548	548
Total AUMs	75	0	3,968	2,336	3,930

Source: Figures are derived from the soil-vegetation inventory conducted by USDI, BLM and Earth Environmental Consultants, Inc. (1980).

<sup>a</sup>Unallotted areas.



**ALTERNATIVE E: PREFERRED  
ALTERNATIVE—PLANNING  
RECOMMENDATION**

Desert bighorn sheep would be provided a total of 2,574 AUMs on the Rockies, Trachyte, Sewing Machine, and Robbers Roost Allotments (Table 4-9). However, domestic livestock use would increase from 8,550 to 15,912 AUMs (186 percent) on these same four allotments (see Table 2-2). Domestic sheep would use 1,675 of these AUMs on the Trachyte and Rockies Allotments.

It is expected that the potential for increases in desert bighorn sheep numbers from increased forage use and water development projects could be offset by increases in livestock use, especially domestic sheep, on Trachyte, Sewing Machine, Rockies, and Robbers Roost Allotments.

Under this alternative, 1,356 AUMs would be provided to accommodate a desert bighorn sheep transplant program in the Little Rockies and Flint Trail unallotted areas. Both of these are currently unallocated for livestock use. Therefore, desert bighorn sheep numbers would be expected to increase significantly on these two areas.

**CONCLUSION**

Desert bighorn sheep numbers could reach UDWR's long-term management goals on all areas where they currently exist as well as proposed transplant sites under Alternative C. Desert bighorn sheep could reach UDWR's long-term management goals on only Little Rockies and Flint Trail unallotted areas under Alternative E. Under Alternative A, desert bighorn sheep numbers would be expected to remain at current levels. Under Alternative B, bighorn sheep would be eliminated from the planning area. Bighorn sheep could also be eliminated under Alternative D because of the increase in livestock, especially domestic sheep, grazing.

**Feral Goats**

No impacts to feral goats have been identified.

**Wild Burros**

One hundred AUMs would be provided for burros in the Robbers Roost Allotment under all alternatives. No adverse impacts to burros are expected; however, it is possible that burros could increase above present numbers.

**Fish**

**ALTERNATIVE A: PROPOSED ACTION—NO  
CHANGE**

Important habitat components for fish are temperature, cover, and stabilized streambanks. These components are provided primarily by the adjacent riparian vegetation. Because Muddy Creek, Fremont, and Dirty Devil Rivers do not provide the necessary factors required for a productive fishery, no impacts to fish populations or fish habitat would be expected. Because the current level of use would not change under this alternative, the riparian habitat along the Colorado River would not be adversely impacted; therefore, fish populations and habitat would not change from the existing situation.

**ALTERNATIVES B, C, D, AND E**

The Colorado River and Lake Powell are the only productive fisheries within the planning area. Both are within national park and recreation areas. Because of the limited access for livestock and the size and turbidity of the Colorado River, none of the proposals under these alternatives would be expected to adversely impact fish populations or habitat.

**CONCLUSION**

No adverse impacts are expected for any fish species inhabiting Muddy Creek, Fremont, Dirty Devil, and Colorado Rivers or Lake Powell under any alternative.

**VISUAL RESOURCES**

Visual impacts would result from rangeland developments, land treatments (chaining, spraying, or burning and seeding), or grazing use. These change agents impact the landform, vegetation or structural components of the landscape. The degree of impact (contrast created) would depend on how the actions were planned, designed, located, constructed, or implemented. Impacts are most noticeable when the activity is in the foreground-middleground viewing zone (visible and less than 5 miles from travel routes/viewpoints). Generally, the contrast with the existing landscape created by an activity varies over the life of the project or activity. The visual impacts of construction and land treatment projects would be most noticeable during the first 5 years after the action and diminish over time (Brown and Kissel, 1979).



Impacts of long duration can result from grazing use. Continued overgrazing causes progressive deterioration of visual resources which can, depending on the range site and extent of degradation, take from a few years to several decades to recover.

The visual resource management (VRM) classes assigned define the management objectives on BLM lands (see Chapter 3, Visual Resources section). The degree of contrast caused by an activity determines if it meets or exceeds those class objectives. Allowable contrast guidelines are defined in BLM Manual 8431, which specifies procedures for assessing potential visual impacts. If the contrast with the existing landscape expected from a proposed activity would exceed the VRM class objectives or degrade highly scenic areas (Class I and II) on Glen Canyon NRA lands, the impact has been considered significant in this analysis.

### **Alternative A: Proposed Action—No Change**

Since no new rangeland improvements are proposed by this alternative, the only impacts to visual resources would be caused by overgrazing on the allotments and unallotted areas identified in Table 4-1. The impacts on vegetation would initially affect the scenic quality of that element of the landscape and, eventually, other elements (because of increased erosion, stock paths, etc.). The downward trend on Nasty Flat would continue and the extent of overgrazing on Crescent Creek and Sandy 2 Allotments and Dry Lakes unallotted area would result in a progressive deterioration of scenic values; thus, in the long term, VRM objectives might not be met. Three of the allotments are on Mt. Ellen, part of the area rated highest in scenic quality. The other allotment, Sandy 2, borders and includes a small portion of Capitol Reef National Park. Thus, while the areas where adverse effects would be expected constitute a small portion of the planning area (approximately 5 percent), they are some of the most scenic and visually sensitive areas.

### **Alternative B: No Action**

The adverse impacts would be similar to those in Alternative A, only greater in magnitude. On 13 allotments (Blue Bench, Bullfrog, Cathedral, Cedar Point, Crescent Creek, Nasty Flat, North Bench, Rockies, Sandy 1 and 2, Sawmill Basin, Steele Butte, and Trachyte) and one unallotted area (Dry Lakes), it is expected that overgrazing would create or continue a downward trend in vegetation which would be visually perceptible. Thus, progressive deterioration of the visual resources on those allotments, comprising approximately 45 percent of the area, would be expected. The areas affected include three allotments on the west side of the Henry

Mountains, two of which border and include small portions of Capitol Reef National Park, and four allotments on Mt. Ellen. The major travel routes (U-24, U-95, and U-276) pass through the other affected allotments. Cathedral Allotment borders Highway U-24 and includes Cathedral Valley. This allotment contains a significant area within Capitol Reef National Park. The Rockies Allotment contains the Little Rockies and lakeside canyons along Lake Powell within Glen Canyon NRA. This area constitutes a visually sensitive area and contains some of the highest quality visual resources.

### **Alternatives C, D, and E**

The impacts on visual resources from implementation of any of these alternatives would be identical because each proposes the same level of vegetation utilization and the same rangeland improvements (see Figure 4-1).

Only Dry Lakes unallotted area would receive grazing use resulting in visually perceptible impacts. Also, the land treatment (1,300 acres) proposed for this unallotted area would not meet VRM Class II management objectives.

Portions of land treatments proposed for seven other allotments could also violate VRM Class II management objectives. Visual resources in VRM Class III and IV portions of these allotments (Bullfrog, Nasty Flat, Pennell, Rockies, Sandy 2, Steele Butte, and Trachyte) would be degraded until vegetation was reestablished (up to 5 years).

Proposed rangeland developments (new reservoir and pipeline construction) would create contrasts exceeding VRM Class II or III objectives on 13 allotments (Blue Bench, Burr Point, Cedar Point, Hanksville, Nasty Flat, Pennell, Robbers Roost, Sandy 1 and 2, Sawmill Basin, Sewing Machine, Steele Butte, and Trachyte) and one unallotted area (Flint Trail). Three reservoirs proposed for reconstruction on Sandy 3 Allotment would be in highly scenic natural zones. In the Rockies Allotment, one reservoir is proposed for construction within the Glen Canyon NRA, a recreation and resource utilization zone.

Thus, under Alternatives C, D, and E, VRM objectives may not be met on 16 allotments and one unallotted area. The areas affected comprise some of the highest quality scenery in the planning area. While design and construction in accordance with BLM Manual 8431 would mitigate or reduce visual impacts, the proposed projects would alter the existing landscape and could create long-term contrasts. Reconstruction of reservoirs in Sandy 3 Allotment would be coordinated with Capitol Reef National Park personnel in accordance with existing agreements to meet NPS management objectives.



## Conclusion

Under Alternative A, the visual resources on three allotments and one unallotted area would be affected by overgrazing, and VRM objectives might not be met. The areas affected represent some of the highest scenic quality and visually sensitive resources in the planning area. Alternative B would have the greatest impact on visual resources. Overgrazing on 13 allotments and one unallotted area (45 percent of the planning area) could cause progressive deterioration of visual resources along the major travel routes and in areas of high scenic quality and visual sensitivity. The impacts under Alternatives C, D, and E would be nearly identical. The rangeland improvements under these alternatives might not meet VRM objectives. The areas affected would constitute less than 2 percent of the planning area; however, the majority of land treatments would be in areas rated highest in scenic quality.

Recovery from the impacts of overgrazing and land treatments could take up to several decades in Class II areas. The impacts from reservoir construction and reconstruction could last into the long term. Underground pipelines would be substantially unnoticeable once vegetation on disturbed areas was reestablished.



Stansbury cliffrose

## WILDERNESS

Impacts to wilderness resource values would generally correspond to those identified in the Visual Resources section above. The effects would result from the same change agents, and the magnitude of impacts could be comparable. Vegetation overutilization could degrade wilderness values. Although some rangeland improvements could enhance wilderness values by better protecting the rangeland's natural condition, rangeland improvements could generally increase "the imprint of man's work." Non-impairment criteria of the BLM's Interim Management Policy (IMP) for Wilderness Study Areas (WSAs) and areas under appeal might not be met.

In this analysis, impacts resulting from actions expected to violate BLM non-impairment criteria or the Glen Canyon NRA/Capitol Reef National Park Management Plan criteria have been considered. Actions violating the criteria could not be taken while the lands are under IMP management, unless such actions were allowed in accordance with "grandfathered rights." Therefore, in most cases, design and construction of proposed rangeland improvements in WSAs and appeal areas would have to meet non-impairment criteria. Otherwise, the improvement would have to be eliminated or construction delayed until Congress decides which areas to include in the National Wilderness Preservation System (NWPS) and which to release from IMP management for other multiple uses.

Similarly, actions in NPS proposed wilderness areas would have to conform to non-mechanical standards or constitute a "minimum management tool." This would affect construction or reconstruction of reservoirs proposed under Alternatives C, D, and E. The Glen Canyon NRA/Capitol Reef National Park General Management Plans also prescribe identical management for natural zones and wilderness. Thus, Congressional designation would not change management goals.

### Alternative A: Proposed Action—No Change

Under this alternative, use would exceed grazing capacity on five allotments (Crescent Creek, Nasty Flat, Sandy 1 and 2, and Trachyte) and one unallotted area (Dry Lakes). Vegetation overutilization would be expected to result in increased rangeland deterioration in these areas except on Sandy 1 and Trachyte Allotments. A portion of Crescent Creek Allotment is within the Bull Mountain WSA (242). Dry Lakes unallotted area and a portion of Nasty Flat Allotment are within the boundary of Mt. Ellen WSA (238). Sandy 2 Allotment includes a large portion of



an area under appeal contiguous to Mt. Ellen WSA and a small portion of proposed wilderness in Capitol Reef National Park. Prolonged overgrazing on these allotments could violate the IMP non-impairment criteria and affect their wilderness suitability. However, implementation of IMP and BLM management policy would preclude this from happening.

### Alternative B: No Action

Under this alternative, use would exceed grazing capacity on 17 allotments and one unallotted area (see Table 4-1). Table 4-10 identifies 12 of those allotments and one unallotted area which contain portions of WSAs, areas under appeal, or NPS proposed wilderness where increased impacts from grazing would probably occur. The table also identifies the proposed NPS wilderness and the six WSAs and/or areas under appeal contiguous to WSAs that could be affected.

### Alternatives C, D, and E

Under Alternatives C, D, or E, five WSAs and contiguous appeal areas could be affected by rangeland improvements and overgrazing. The impacts to wilderness from implementation of these alternatives would be nearly identical since each proposes the same level of vegetation utilization and the same rangeland improvements. Under Alternatives C and E, overutilization could be expected on Dry Lakes unallotted area. This would result from bison use and could affect the Mt. Ellen WSA (238).

Table 4-11 identifies allotments and unallotted areas where proposed rangeland improvements may affect WSAs and/or appeal areas.

### Conclusion

Under Alternative A, impacts of overgrazing on three allotments and one unallotted area would affect Mt. Ellen (238) and Mt. Pennell (248) WSAs, contiguous appeal areas, and small portions of Capitol Reef National Park proposed wilderness. However, BLM policy would preclude overutilization which would, in the long term, impair wilderness values.

Under Alternative B, increased impacts by overgrazing on 12 allotments and one unallotted area would violate BLM IMP non-impairment criteria on portions of the six WSAs and NPS proposed wilderness areas indicated in Table 4-10.

Under Alternatives C and E, increased impacts caused by vegetation overutilization by bison would be expected on one unallotted area in the Mt. Ellen WSA. This would violate BLM non-impairment criteria. Proposed rangeland improvements on 12

allotments and one unallotted area under Alternatives C, D, and E would have to be designed and constructed to meet non-impairment criteria. If non-impairment criteria could not be met, rangeland improvements would have to be eliminated or the construction delayed until Congress decides which WSAs to include in the NWPS.

Recovery from the impacts of overgrazing could take from several years to several decades. However, as indicated above, BLM policy would not allow long-term vegetation overutilization and resultant impairment of wilderness values.

### RECREATION

Impacts to recreational resources resulting from implementation of the alternatives would be caused by grazing use, construction of rangeland improvements, or a combination of both.

Rangeland improvements could, depending on design and construction, affect primitive and general sightseeing values, at least in the short term. Development of springs where water is suitable for human consumption could, if designed and constructed not to impair primitive values, be beneficial to recreationists. Improved wildlife habitat, with resultant increases in animal numbers, especially of big game species, would increase hunting and zoologic sightseeing values.

On most allotments under Alternatives B, C, D, and E, increased livestock grazing use (see Table 2-3) would have the following effects:

1. In unfenced campgrounds (developed and undeveloped) and water sources (springs), increased fecal accumulations would reduce aesthetics, user satisfaction, and impair water quality. This has occurred in the Halls Creek area where water sources and campsites have been impacted.
2. If grazing use exceeded capacity by a significant margin for a prolonged period, changes in vegetation and reduction of ground cover could cause a long-term progressive decline in botanical, zoological, and general sightseeing values and degradation of primitive values.
3. If livestock use resulted in a reduction of suitable wildlife habitat and animal numbers (especially bison and deer), hunting and zoologic sightseeing values would be adversely affected.



TABLE 4-10

Alternative B  
Allotments and Unallotted Areas  
Where Grazing Impacts Could Affect WSAs,  
Areas Under Appeal, and NPS Proposed Wilderness

Allotments/Unallotted Areas	WSA/Appeal Area or NPS Proposed Wilderness Affected
Blue Bench	Mt Ellen (238) <sup>a</sup>
Bullfrog	Mt Pennell (248) <sup>a</sup>
Cathedral	Capitol Reef National Park
Cedar Point	Fiddler Butte (241) <sup>a</sup>
Crescent Creek	Bull Mountain (242)
Dry Lakes	Mt. Ellen (238)
Nasty Flat	Mt. Ellen (238)
Rockies	Little Rockies (247) and Glen Canyon NRA
Sandy 1	Appeal area (Mt. Ellen) and Capitol Reef National Park
Sandy 2	Appeal area (Mt. Pennell) and Capitol Reef National Park
Sawmill Basin	Mt. Ellen (238) and Bull Mountain (242)
Steele Butte	Mt. Pennell (248) <sup>a</sup>
Trachyte	Little Rockies (247 and Mt. Hillers (249)

<sup>a</sup>Areas under appeal could also be affected.

<sup>b</sup>Unallotted area.

TABLE 4-11

Alternatives C, D, and E  
Allotments and Unallotted Areas  
Where Proposed Rangeland Improvements Could Affect  
WSAs, Areas Under Appeal, and NPS Proposed Wilderness

Allotment/Unallotted Areas	Improvement(s)	WSA/Appeal Area or NPS Proposed Wilderness Affected
Blue Bench	Reservoirs	Mt. Ellen (238)
Bullfrog	Land Treatment	Mt. Pennell (248)
Burr Point	Reservoir	Dirty Devil (236A)
Dry Lakes <sup>a</sup>	Land Treatment	Mt. Ellen (238)
Nasty Flat	Land Treatment	Mt. Ellen (238)
Pennell	Land Treatment/Spring Development	Mt. Pennell (248) and Mt. Hillers (249)
Robbers Roost	Reservoirs	Horseshoe Canyon (237)
Rockies	Land Treatment	Mt. Hillers (249)
Sandy 2	Land Treatment	Appeal Area (Mt Pennell)
Sandy 3	Reservoirs	Capitol Reef National Park
Sawmill Basin	Reservoir/Spring Development	Mt. Ellen (238)
Steele Butte	Land Treatment and Reservoir	Mt. Pennell (248)
Trachyte	Land Treatment	Mt. Hillers (249)

<sup>a</sup>Unallotted area.



### Alternative A: Proposed Action—No Change

Overgrazing on three allotments (Crescent Creek, Nasty Flat, and Sandy 2) and one unallotted area (Dry Lakes) would degrade primitive values in those areas. Grazing impacts on the unfenced developed facilities at McMillan Springs Campground on Nasty Flat Allotment would continue to affect aesthetics, user satisfaction, and water quality. With the exception of bison, big game and other wildlife numbers would be expected to remain at current levels. The reduction in bison numbers anticipated in the long term would reduce hunting and sightseeing values.

### Alternative B: No Action

Prolonged vegetation overutilization would affect recreation values on the 12 allotments shown in Table 4-12 (see Table 3-12 for specific resources). In addition, bison use would continue to exceed grazing capacity on Dry Lakes unallotted area which would, in time, affect primitive values.

Long-term vegetation overutilization and the resultant deterioration of wildlife habitat, especially for bison and deer, would cause a progressive decline in big game numbers. This would significantly affect big game hunting resources and the amount of hunting activity. The decline in bison and deer numbers and the elimination of antelope and bighorn sheep would also affect zoologic sightseeing values.

### Alternatives C, D, and E

Generally, the impacts to recreation resources and activities caused by rangeland improvements under these alternatives would be the same.

Construction of some improvements (reservoirs, pipelines, and land treatments) would have short- and long-term impacts on sightseeing and primitive values (intrusions and scenic quality). Development of springs on some allotments could benefit recreationists (hunters, hikers, sightseers, etc.). The rangeland improvements proposed for each allotment under these alternatives are shown in Table 2-4 and Figure 4-1.

The following impacts of grazing use differ for each of these alternatives because forage use levels to wildlife differ and would have different effects on hunting, zoologic sightseeing, and primitive values.

1. *Alternative C: Optimize Big Game:* The proposed big game habitat improvements and reductions in competing livestock use would, by elimination of grazing on four allotments and reductions in grazing use on three other allotments, result in increased numbers of big game and other wildlife species in the long term. This would improve hunting, zoologic sightseeing, and primitive recreation values. Increased big game numbers would increase hunting activity. (Estimates of the increases in hunter days are shown in Table 4-13.) Increased livestock use

TABLE 4-12

Alternative B  
Allotments and Unallotted Areas  
Where Vegetation Overutilization  
Would Affect Recreation

Allotment	Recreation Values Affected
Blue Bench	Primitive, hunting, and sightseeing (U-24 corridor)
Bullfrog	Primitive, hunting, and sightseeing
Cathedral	Primitive, hunting, and sightseeing (U-24 corridor)
Cedar Point	Primitive and sightseeing (U-95 corridor)
Crescent Creek	Hunting, primitive and general sightseeing
Dry Lakes <sup>a</sup>	Hunting, primitive and general sightseeing
Nasty Flat	Hunting, primitive, developed (camping), and sightseeing
Rockies	Hunting, primitive, and sightseeing (U-276 corridor)
Sandy 1	Primitive and sightseeing (U-24 corridor)
Sandy 2	Hunting and general sightseeing
Sawmill Basin	Primitive, hunting, and sightseeing
Steele Butte	Primitive, hunting, and sightseeing
Trachyte	Primitive, hunting, and general sightseeing

<sup>a</sup>Unallotted area.



TABLE 4-13

Estimated Big Game Hunter Days Under Alternative C

Species	Current	Hunter Days Projected	Increase
Bison	98	220	122
Deer	653	1,213	560
Antelope	0	90	90
Bighorn Sheep	0	1,900	1,900

TABLE 4-14

Estimated Big Game Hunter Days Under Alternative D

Species	Current	Hunter Days Projected	Increase (Decrease)
Bison	98	0	(-98)
Deer	653	538	(-114)
Antelope	0	0	0
Bighorn Sheep	0	0	0

TABLE 4-15

Estimated Big Game Hunter Days Under Alternative E

Species	Current	Hunter Days Projected	Increase (Decrease)
Bison	98	65	(-33)
Deer	653	809	156
Antelope	0	60	60
Bighorn Sheep	0	390	390



on five allotments could affect undeveloped campsites and water sources.

*2. Alternative D: Optimize Livestock:* The elimination of bison from the Henry Mountains would have the most profound impact on recreation values. Zoologic sightseeing, hunting, and primitive values in the Henry Mountains would be significantly affected. The decline in deer numbers and possible long-term elimination of bighorn sheep would affect the same values. The anticipated long-term changes in hunting activity resulting from implementation of this alternative are summarized in Table 4-14. Increased livestock use on eight allotments could affect undeveloped campsites and water sources.

*3. Alternative E: Preferred Alternative—Planning Recommendation:* In the long term, increases in big game numbers and improvement of wildlife habitat would occur. A small reduction in bison numbers would be expected; however, overall zoologic sightseeing, hunting, and primitive recreation values would improve. The changes in hunting activity in the long term are shown in Table 4-15.

## Conclusion

Under Alternative A, recreation values on three allotments and one unallotted area would be affected by overgrazing. Primitive and sightseeing values and one developed campground would be impacted. Under Alternative B, overgrazing would affect recreation values on 12 allotments and one unallotted area. In the long term, zoologic sightseeing, primitive, and big game hunting values would be affected because of progressive declines in big game numbers caused by competition for forage and impacts on habitat. This would degrade zoologic and general sightseeing, hunting, and primitive values. Rangeland improvements under Alternatives C, D, and E would have short- and long-term impacts on sightseeing and primitive recreation because of effects of intrusions on scenic and primitive values. Development of springs would benefit recreationists. Improvements in big game habitat under Alternatives C and E would improve zoologic sightseeing and hunting values for all big game species. Elimination of the bison herd under Alternative D would significantly affect sightseeing and hunting values. Increased numbers of bighorn sheep and antelope would improve sightseeing and hunting values. Increased livestock use would affect undeveloped campsites on five, eight, and seven allotments under Alternatives C, D, and E, respectively.

Based on the above, Alternative C would benefit recreation values most, followed by Alternative E. Alternatives A, D, and B follow in order of increasing impact on recreation values, with B having the most adverse impacts.

## LIVESTOCK GRAZING

### Alternative A: Proposed Action—No Change

Livestock active preference (56,285 AUMs [BLM and Glen Canyon NRA lands only]) would be adjusted to average licensed use (30,948 AUMs). Table 3-13 shows the levels of grazing that have occurred during each of the last 7 years. Average use during that period has been 54 percent of active preference. (Table 2-2 compares average licensed use to active preference.) Tables 4-16 and 4-17 summarize the initial forage use level and the AUM changes for the permittees in each of the size categories for each alternative. The following discusses the magnitude of changes proposed under each alternative and identifies how many permittees would be affected by these changes.

### COMPARISON OF PROPOSED LIVESTOCK USE TO ACTIVE PREFERENCE

Active preference would be reduced by an average 45 percent (30,948 AUMs) and would affect all 58 permittees. The highest relative reduction would be 90 percent (963 AUMs) on the Wild Horse Allotment and 411 AUMs on North Bench Allotment. The greatest reduction would be 3,501 AUMs (58 percent) on the Hanksville Allotment. Crescent Creek would receive the only increase (1 percent or 3 AUMs).

### COMPARISON OF PROPOSED LIVESTOCK USE TO INVENTORY AND MONITORING STUDIES

While monitoring and trend studies and the soil-vegetation inventory show that, overall, the planning area could support average licensed use and existing big game use, this is not true on an individual allotment basis. The following allotments do not produce sufficient forage to maintain average licensed use and are estimated to be overutilized by the amount shown below (see also Tables 3-3 and 4-1).

Allotment	Overutilization
Crescent Creek	152 AUMs
Nasty Flat	171 AUMs
Sandy 1	147 AUMs
Sandy 2	542 AUMs
Steele Butte	784 AUMs
Trachyte	433 AUMs



On allotments where overutilization would occur, the most desirable plants would be removed and the nutrient value for livestock would be reduced. Morrison et al. (1959) have shown that 20- to 30-percent decreases in calf crops can occur under such circumstances. This would affect the livestock production for 16 permittees.

Permittees would have the responsibility of maintaining all livestock rangeland developments without the possibility of increasing their herd size to cover that increasing cost.

### Alternative B: No Action

Livestock would be allowed to graze at active preference, 56,285 AUMs. This would be 25,337 AUMs more than average licensed use. Big game numbers would be allowed at the 1974 reservation level of 7,200 AUMs, and wild burro use would be held to 100 AUMs.

### COMPARISON OF ACTIVE PREFERENCE TO INVENTORY AND MONITORING STUDIES

An analysis of monitoring and trend data and the soil-vegetation inventory indicates that, considering the big game reservation, only 47,695 AUMs would be available to satisfy the remaining grazing needs. Consequently, the range would be overutilized by 13,235 AUMs even though 5,136 AUMs would be available on allotments which have grazing capacity above active preference. The 16 allotments which would be overutilized and the estimated percent (active preference divided by available forage) and amounts of overutilization and percent reduction needed in active preference to achieve proper use are listed below (see also Tables 3-3 and 4-1):

Allotment	Percent Over-utilization	Over-utilization (AUMs)	Percent Reduction in Active Preference
Blue Bench	67	1,849	40
Bullfrog	34	872	25
Burr Point	14	552	12
Cathedral	34	632	25
Cedar Point	34	598	31
Crescent Creek	83	151	45
Hartnet	6	54	5
Nasty Flat	60	171	37
North Bench	49	150	32
Pennell	10	245	9
Rockies	29	1,620	27
Sandy 1	39	311	31
Sandy 2	212	1,513	67
Sawmill Basin	159	102	61
Steele Butte	167	3,146	62
Trachyte	80	1,269	44

The most serious overstocking would occur on Sandy 2 (212 percent of capacity), Steele Butte (167 percent), and Sawmill Basin (158 percent). On these overstocked allotments, 39 permittees would begin to see the productivity of the livestock decline as rangeland condition deteriorated.

With grazing at active preference levels, only six allotments (Hanksville, Robbers Roost, Sandy 3, Sewing Machine, Wild Horse, and Waterpocket) would contain sufficient forage for the proposed stocking level. The 19 permittees involved would increase their stocking level, resulting in increased livestock production. Four of these permittees would be involved with the overstocked allotments (Sandy 2, Steele Butte, and Sawmill Basin) mentioned above.



Sand bluestem

### COMPARISON OF ACTIVE PREFERENCE TO AVERAGE LICENSED USE

All allotments, with the exception of Crescent Creek, would receive increases in AUMs over average licensed use. Only one permittee would experience a reduction (1 percent or 3 AUMs). Use would increase 20,188 AUMs for cattle (166 percent) and 5,149 AUMs for sheep (1.124 percent). Overutilization would occur on 17 of the 22 allotments (see Table 4-1).



### Alternative C: Optimize Big Game

Active preference would be reduced to 39,804 AUMs (see Table 2-2). This is 70 percent of active preference (56,285 AUMs) and is 8,856 AUMs more than average licensed use (30,948 AUMs). Stocking would be at the rangeland's grazing capacity, and a high level of livestock production would be maintained.

#### COMPARISON OF ALTERNATIVE USE TO ACTIVE PREFERENCE

Active preference on the Hanksville, Sandy 3, and Wild Horse Allotments would not change. Active preference would be increased on Robbers Roost, Sewing Machine, and Waterpocket Allotments.

Active preference would be eliminated on four allotments (Crescent Creek, Nasty Flat, Pennell, and Sawmill Basin). Sheep use would be eliminated from Rockies and Trachyte Allotments to avoid conflicts with bighorn sheep. Elimination on these six allotments would affect nine permittees by eliminating most of their summer operations. Most active preference increases would occur on winter ranges. Active preference would be reduced on the 13 allotments listed below.

Allotment	Reduction (AUMs)	Percent of Active Preference
Blue Bench	1,861	40
Bullfrog	90	2
Burr Point	2,933	66
Cathedral	632	26
Cedar Point	863	45
Hartnet	54	5
North Bench	150	32
Rockies	3,014	48
Sandy 1	112	11
Sandy 2	1,527	68
Steele Butte	3,172	63
Trachyte	1,875	65

In addition to the changes mentioned above, the nine permittees whose active preference would be eliminated would also be affected by reductions on other allotments. Altogether, 41 permittees would be given reductions.

Ten permittees would be allowed to graze their livestock at above active preference on the three allotments (Robbers Roost, Sewing Machine, and Waterpocket) where grazing would increase above active preference. However, grazing use of one of those permittees would have been eliminated on another allotment. Active preference on three allot-

ments would not change, affecting seven permittees; one permittee would receive an increase on one allotment and decreases on other allotments.

#### COMPARISON OF ALTERNATIVE LIVESTOCK USE AND AVERAGE LICENSED USE

In addition to the four allotments (Crescent Creek, Nasty Flat, Pennell, and Sawmill Basin) on which grazing would be eliminated, four other allotments (Rockies, Sandy 2, Steele Butte, and Trachyte) would be stocked at levels lower than average licensed use. Grazing use on 14 allotments (Blue Bench, Bullfrog, Burr Point, Cathedral, Cedar Point, Hanksville, Hartnet, North Bench, Robbers Roost, Sandy 1, Sandy 3, Sewing Machine, Waterpocket, and Wild Horse) would exceed average licensed use.

#### LAND TREATMENTS

Land treatments are proposed on nine allotments and one unallotted area (see Table 2-4), including the four allotments on which livestock grazing would be eliminated. The following compares initial AUM reductions with predicted long-term AUM increases resulting from land treatments.

Allotment	Initial Reduction (AUMs)	Long-Term Restoration (AUMs)
Bullfrog	90	83
Rockies	3,014	100
Sandy 2	1,527	50
Steele Butte	3,172	160
Trachyte	1,875	25

These increases would benefit the affected permittees in the long term, resulting in a 1-percent increase above the alternative's initial reductions.

### Alternative D: Optimize Livestock

This alternative proposes to eliminate bison use and limit other big game use to levels compatible with 59,528 AUMs for livestock (46,677 AUMs for cattle and 12,851 AUMs for sheep).

#### COMPARISON OF ALTERNATIVE USE AND ACTIVE PREFERENCE

Cattle active preference would be reduced on 16 allotments, affecting 35 permittees, as follows:



Allotment	Active Preference Reduction (AUMs)	Percent of Reduction
Blue Bench	1,842	40
Bullfrog	928	29
Cathedral	632	25
Cedar Point	558	29
Crescent Creek	127	38
Hartnet	54	5
North Bench	150	32
Rockies	1,875	33
Sandy 1	271	29
Sandy 2	1,343	60
Sawmill Basin	13	7
Steele Butte	3,012	59
Trachyte	1,044	49

Burr Point would be the only allotment to receive a decrease in sheep grazing use (1,360 AUMs). Four other allotments also have sheep permits. Sheep use would be increased on these allotments, as follows:

Allotment	Increase (AUMs)	Percent of Increase
Bullfrog	980	404
Rockies	2,383	976
Sandy 1	159	411
Trachyte	710	193

Forage use levels under this alternative would exceed active preference levels for 27 permittees on the following eight allotments:

Allotment	Alternative Use Increase (AUMs)		Percent of Active Preference Increase	
	Cattle	Sheep	Cattle	Sheep
Burr Point	819	0	139	0
Hanksville	1,810	2,869	139	196
Nasty Flat	484	0	202	0
Pennell	51	1,054	105	706
Robbers				
Roost	1,614	0	130	0
Sewing				
Machine	1,081	0	167	0
Waterpocket	65	449	102	248
Wild Horse	428	0	40	0

For Sandy 3 Allotment (cattle grazing only), active preference would not change for three permittees. In addition to the increases above, 1,500 AUMs would be provided for livestock use from the Dry Lakes, Flint Trail, and Little Rockies unallotted areas.

These increases would affect 26 permittees. Seven of these permittees would have received reductions on other allotments. Consequently, 20 permittees would receive active preference increases, 29 permittees would receive reductions, and seven permittees would receive both increases and decreases on different allotments. Active preference for two permittees on Sandy 3 Allotment would not change. One permittee for Sandy 3 Allotment would receive an increase on another allotment.

#### COMPARISON OF SHEEP AND CATTLE USE

An important consideration in this alternative is the increase in sheep use, which is proposed to increase more than cattle use. The average licensed use for sheep is 301 AUMs (only four of the eight allotments with sheep permits have been used by sheep in the last 5 years). The active preference for sheep is for 5,589 AUMs; this alternative proposes 12,851 AUMs for sheep.

#### COMPARISON OF ALTERNATIVE USE AND AVERAGE LICENSED USE

Livestock grazing at the alternative level would be less than average licensed use on five allotments. Reductions in use on these allotments would affect 15 permittees. The reduction in use levels would be as follows:

Allotment	Reduction in AUMs	Percent of Average Use Reduction
Crescent Creek	130	38
Sandy 1	72	9
Sandy 2	624	41
Steele Butte	44	2
Trachyte	54	4

#### LONG-TERM AUM CHANGES FROM LAND TREATMENTS

As described in Alternative C, land treatments would occur on nine allotments and one unallotted area. The following compares initial reductions proposed for seven allotments to present active preference and predicts long-term increases resulting from land treatments.



Allotment	Initial Active Preference Reduction (AUMs)	Long-Term Restoration (AUMs)
Bullfrog	928	250
Crescent Creek	127	400
Rockies	1,875	300
Sandy 2	1,343	150
Sawmill Basin	13	150
Steele Butte	3,012	480
Trachyte	1,044	75

Even with additional AUMs from land treatments, active preference would still not be reached. Nasty Flat Allotment would receive an initial increase of 484 AUMs for cattle; a long-term increase of 224 AUMs would occur from land treatments. Pennell Allotment would receive an initial increase of 51 AUMs for cattle and 1,054 AUMs for sheep; in addition, this allotment would receive a long-term increase of 800 AUMs, mostly for cattle use.

Four-wing saltbush



### Alternative E: Preferred Alternative—Planning Recommendation

Livestock grazing at the proposed level (50,485 AUMs) would be 163 percent of average licensed use (30,948 AUMs) and 89 percent of active preference (56,285 AUMs).

### COMPARISON OF ALTERNATIVE USE TO ACTIVE PREFERENCE

Active preference for Sandy 3 Allotment would not change. One of the three permittees with grazing use on this allotment would be involved in reductions on other allotments. Active preference for cattle would not be reached on the 16 allotments listed below. A total of 41 permittees would receive reductions.

Allotment	Reductions In Active Preference (AUMs)	Percent of Active Preference
Blue Bench	1,845	40
Bullfrog	764	24
Burr Point	2,152	48
Cathedral	632	25
Cedar Point	619	32
Crescent Creek	145	43
Hartnet	54	5
Nasty Flat	75	15
North Bench	150	32
Pennell	90	3
Rockies	1,612	20
Sandy 1	271	29
Sandy 2	1,521	68
Sawmill Basin	70	42
Steele Butte	3,160	62
Trachyte	946	44

On Burr Point Allotment, cattle would be reduced 1,047 AUMs and sheep would be reduced 1,105 AUMs, for the total AUM reduction of 2,152.

The ten allotments listed below would have increases in stocking. Increases are for cattle unless otherwise specified.



Allotment	Active Preference Increase (AUMs)	Percent of Increase
Bullfrog (sheep)	357	111
Hanksville	4,215	70
Pennell (sheep)	57	33
Robbers Roost	1,152	22
Rockies (sheep)	603	222
Sandy 1 (sheep)	159	312
Sewing Machine	1,046	65
Trachyte (sheep)	57	8
Waterpocket	243	8
Wild Horse	424	40

Reductions in active preference would affect 38 permittees. Increases in active preference would affect 14 permittees, and six permittees would receive increases on some allotments and decreases on others.

#### COMPARISON OF ALTERNATIVE USE TO AVERAGE LICENSED USE

On Burr Point and Sandy 1 allotments, sheep use would be increased above average licensed use. Cattle use on the following allotments would be reduced below average licensed use:

Allotment	Adjustment Below Average Use (AUMs)	Percent Reduction
Burr Point	600	35
Crescent Creek	146	44
Nasty Flat	69	15
Sandy 1	188	22
Sandy 2	798	30
Steele Butte	378	25

Those reductions to average licensed use would affect 20 permittees while 36 permittees would receive increases in average licensed use. Two permittees would receive increases on some allotments and decreases on others.

#### LONG-TERM AUM CHANGES FROM LAND TREATMENTS

Land treatments would occur on nine allotments and one unallotted area (see Table 3-3). The following compares initial AUM reductions in active preference and predicted long-term increases resulting from land treatments.

Allotment	Initial Reduction (AUMs)	Long-Term Restoration (AUMs)
Crescent Creek	145	150
Nasty Flat	75	225
Rockies	1,612	300
Sandy 2	1,521	150
Sawmill Basin	70	110
Steele Butte	3,160	480
Trachyte	946	75

The livestock use and additional AUMs given to permittees on these seven allotments would still be short of active preference.

On Bullfrog (3,442 AUMs active preference) and Pennell (2,594 AUMs active preference), increases of 250 and 675 AUMs, respectively, would result from land treatments in the long term. This increase would be 4 percent of the alternative forage use.

#### Conclusion

Table 4-16 summarizes the livestock forage use and changes in active preference. Alternative A would have the greatest active preference reduction. Alternative D would result in the greatest benefit to permittees, with the greatest advantage to permittees having sheep. When considering multiple-use management, Alternative E would provide a relatively high benefit to livestock permittees.

Alternatives A and B would both result in overgrazing. Overgrazing is incompatible with BLM objectives and could not be allowed.

Grazing at about the indicated grazing capacity in the short term would provide long-term benefits to livestock production; overgrazing in the short term would be expected to result in declining livestock production.



TABLE 4-16

Summary of Forage Use

	Alternatives				
	A	B	C	D	E
No. of Permittees Affected By Adjustments in Active Preference:					
Reductions	57	0	41	20	38
Increases	0	0	9	29	14
No Change	0	57	6	2	0
Increases and Decreases	1	1	2	7	6
Cattle Use (AUMs)	30,490	50,678	35,722	46,677	42,006
Sheep Use (AUMs)	458	5,607	4,082	12,857	8,481
Total Livestock Use (AUMs)	30,948	56,285	39,804	59,528	50,487
Percent of Active Preference	54	100	71	106	90

Source: USDI, BLM, 1982a.

TABLE 4-17

Changes in AUMs By Average Size Category of Livestock Permittees

	Average Small Ranching Operations (AUMs)	Average Medium Ranching Operations (AUMs)	Average Large Ranching Operations (AUMs)
Existing Use	179	623	1,238
Alternative A (average licensed use)	179	623	1,238
Alternative B (active preference)	332	1,184	2,298
Alternative C (optimize big game)	206	733	1,489
Alternative D (optimize livestock)	216	931	1,907
Alternative E (multiple use)	217	850	1,763

Source: USDI, BLM, 1982a.



## SOCIOECONOMICS

This analysis will include impacts to ranch income and capital, regional economics, and attitudes and expectations. The ranch budget analysis in this section is presented to give a relative indication of economic impacts to permittees. Although this analysis quantifies economic impacts to the average ranch in each category, actual impacts on individual permittees may not be reflected. Change in net ranch income were calculated using a linear programming model (U.S. Department of Agriculture [USDA], Forest Service [FS], 1982a) and a partial budget adapted from Jacobsen (1981).

Wayne, Sevier, and Garfield Counties constitute the impact region. Because of their interrelationships and the availability of data, the regional impacts will be analyzed on this three-county level. Changes in the number of AUMs could impact ranch capital by means of the "market value" of the permit.

The regional economy (Wayne, Garfield, and Sevier Counties) would also be impacted by changes in livestock grazing. Estimates of the magnitudes of these impacts were made using the USDA, FS IMPLAN Economic Model (1982a). For the purpose of regional analysis, all AUMs allotted, including those allotted for sheep use, are included and assumed to be used. While the magnitude of the figures representing regional impacts is small, it should be kept in mind that the region is considerably larger than the planning area. Therefore, these figures should be used for comparison between alternatives and should not be taken at face value.

### Alternative A: Proposed Action—No Change

Table 4-18 summarizes the economic impacts to the various ranch categories resulting from the proposed grazing levels. There would be no predictable change to net ranch income because the average level of use, as defined by this alternative, is used as the baseline, and permittees would be allowed to graze their livestock at this level. However, ranching operations would be impacted by significant reductions in their permits. These reductions would affect ranch capital values, as shown in Table 4-18, and are the largest reductions in capital value among the alternatives analyzed.

The average small cattle ranch shows a loss of 183 AUMs for active preference or approximately \$3,660; the medium-sized ranch shows a loss of 712 AUMs or \$14,240; and the average large ranch is estimated to lose 1,177 AUMs or about \$23,540 in capital value.

Because this alternative represents a baseline, no regional economic impacts are projected from changes in livestock grazing or big game hunting.

### Alternative B: No Action

Table 4-19 summarizes the economic impacts to the various ranch categories caused by the proposed grazing levels. The medium category of cattle permittees would experience the largest percentage change, with a 58-percent increase in net ranch income (about \$5,803). However, in terms of dollar value, the large category of cattle permittees would have the greatest increase, about \$15,230, with small ranch income increasing by \$1,922. These ranch income increases are the largest of any of the alternatives analyzed.

The capital value of permits would remain unchanged because the present active preference would be maintained.

Regional impacts caused by changes in the livestock industry under Alternative B result in the largest impacts of the alternatives analyzed (see Table 4-20).

Sales generated by hunting would be reduced as hunter days in the planning area declined. This would be especially true of bison hunting because there is no other place in the State of Utah to hunt bison. Deer hunters could hunt in other regions throughout the State, possibly reducing local revenues generated by this activity.

### Alternative C: Optimize Big Game

Table 4-21 summarizes the economic impacts from changed grazing levels to the various ranch categories.

Under this alternative, the medium category of cattle permittees would experience the most significant economic impact, with a 20-percent (\$2,013) increase in net ranch income. The large and small categories are projected to show income increases of 16 percent (\$6,379) and 11 percent (\$767), respectively.

Reductions in permit size/capital value range from 684 AUMs (\$13,680) for the large category ranch, to 110 AUMs (\$2,200) for the small category ranch, with the medium category ranch losing 465 AUMs (\$9,300).

Regional impacts caused by changes in the livestock industry show slight increases in all three indicators (see Table 4-22).

The projected increase of 122 bison hunters would increase sales generated by this activity by 104 percent, while increases in other big game hunting (deer, antelope, and bighorn sheep) would generate additional sales of about 391 percent in the long term.



TABLE 4-18

Alternative A: Changes in Ranch Income and Capital

Permittees	Average Net Ranch Income <sup>a</sup>	Percent Change From Average Net Ranch Income	Percent Change in BLM Permits and Capital Value
Cattle Permittees			
Small (1-99 cows)	\$ 7,017	--	-55
Medium (100-199 cows)	10,114	--	-60
Large (200+ cows)	42,062	--	-51

<sup>a</sup>Computed based on this alternative.

TABLE 4-19

Alternative B: Changes in Ranch Income and Capital

Permittees	Net Ranch Income	Percent Change From Average Net Ranch Income	Percent Change in BLM Permits and Capital Value
Cattle Permittees			
Small (1-99)	\$ 8,679	+28	--
Medium (100-199)	15,762	+58	--
Large (200+)	55,287	+38	--

Source: USDA, BLM, 1982a.

TABLE 4-20

Alternative B: Regional Economic Impacts

Regional Impacts	Percent Change From Existing Level		
	Total Gross Output <sup>a</sup>	Labor	Income <sup>b</sup>
Livestock Grazing	+1.4	+0.9	+0.8

Source: USDA, FS, 1982a.

<sup>a</sup>The total sales of each sector within the region; includes sales to consumers within the region and sales to industries and consumers outside the region (exports).

<sup>b</sup>Income earned by all households within the region (salaries, wages, profits, rents, royalties, interest, etc.).



TABLE 4-21

Alternative C: Changes in Ranch Income and Capital

Permittees	Net Ranch Income	Percent Change From Average Net Ranch Income	Percent Change in BLM Permits and Capital Value
Cattle Permittees			
Small (1-99)	\$ 7,523	+11	-33
Medium (100-199)	11,972	+20	-39
Large (200+)	46,436	+16	-30

Source: USDI, BLM, 1982a.

TABLE 4-22

Alternative C: Regional Economic Impacts

Regional Impacts	Percent Change From Existing Level		
	Total Gross Output <sup>a</sup>	Labor	Income <sup>b</sup>
Livestock Grazing	+0.7	+0.5	+0.4

Source: USDA, FS, 1982a.

<sup>a</sup>The total sales of each sector within the region; includes sales to consumers within the region and sales to industries and consumers outside the region (exports).

<sup>b</sup>Income earned by all households within the region (salaries, wages, profits, rents, royalties, interest, etc.).



### Alternative D: Optimize Livestock

Table 4-23 summarizes the economic impacts from changed grazing levels to the various ranch categories. This alternative produced increases in net ranch income as follows: large, 41 percent (\$16,279); medium, 46 percent (\$4,597); and small, 21 percent (\$1,450). It would cause the least impact to the capital value of the permits in all three categories, with the large category of cattle permittees showing an increase of 81 AUMs (\$1,620) above active preference, the medium declining 148 AUMs (\$2,960), and the small declining 45 AUMs (\$900).

This alternative has positive impacts on the regional economy similar to Alternative B, as shown in Table 4-24. However, the projected elimination of bison would eliminate all sales generated by bison hunting.

### Alternative E: Preferred Alternative—Planning Recommendation

Table 4-25 summarizes the economic impacts from changed grazing levels to the various ranch categories. This alternative would produce the following increases in net ranch incomes by category: large, 31 percent (\$12,526); medium, 37 percent (\$3,667); and small, 15 percent (\$1,019). The decreases in capital values are as follows: large, \$4,180; medium, \$5,240; and small, \$1,720.

Regional impacts caused by changes in the livestock industry are presented in Table 4-26. These impacts are positive and close in magnitude to those projected for Alternatives B, D, and E. However, this alternative would reduce local revenue from bison hunting by about 30 percent and increase other big game revenue by 93 percent.

### Conclusion

In terms of overall percentage changes in capital value and net ranch income, Alternative B is the most favorable of the alternatives considered. However, in the long term, the resultant overgrazing occurring under this alternative would cause adverse economic impacts. Alternative D is the next most favorable to ranching operations, with Alternative E a close third.

Considering the regional economy, Alternative B also has the greatest positive impact, resulting from the large forage use level for sheep, which was included in the regional analysis. Alternative C would have the smallest impact on the regional economy (increases in total gross output, total income, and

employment each less than 1 percent), with Alternatives B and E having similar positive impacts.

### Attitudes and Lifestyles

#### ALTERNATIVE A: PROPOSED ACTION—NO CHANGE

In the short and long terms, some livestock permittees would feel that big game numbers, particularly bison, should be reduced. Conversely, recreationist and conservation groups would generally resent the limiting of big game. In addition, conservation groups would contest continued grazing management as unplanned use of public lands.

#### ALTERNATIVE B: NO CHANGE

The effects of Alternative B would be the same as Alternative A.

#### ALTERNATIVE C: OPTIMIZE BIG GAME

In the short and long terms, livestock permittees would resent priority forage use for big game. Permittees would particularly resent the replacement of livestock forage use by bison on four allotments. Livestock permittees would resent the decline in ranching lifestyle because of diminished operations.

#### ALTERNATIVE D: OPTIMIZE LIVESTOCK

In the short and long terms, miners and conservation groups would resent priority forage use by livestock. The elimination of all bison AUMs would be particularly contested. In addition, conservation groups would believe that planning area scenic and recreational values would be diminished.

#### ALTERNATIVE E: PREFERRED ALTERNATIVE—PLANNING RECOMMENDATION

In the short and long terms, some livestock permittees would feel that bison numbers should be reduced.

### Conclusion

Livestock permittees, recreationists, and conservation groups would probably perceive Alternatives A and B as being essentially the same program. Livestock permittees would feel that big game numbers should be reduced, but recreationist and conservation groups would resent the limiting of big game numbers. Conservation groups would consider both alternatives as unplanned use of public lands. Livestock permittees would resent Alternative C the most. Conversely, recreationist and conservation groups would resent Alternative D the most. Alternative E would be perceived as the most balanced use of public lands by all user groups.



TABLE 4-23

Alternative D: Changes in Ranch Income and Capital

Permittees	Net Ranch Income	Percent Change From Average Net Ranch Income	Percent Change in BLM Permits and Capital Value
Cattle Permittees			
Small (1-99)	\$ 8,206	+21	-14
Medium (100-199)	14,556	+46	-13
Large (200+)	56,335	+41	+ 4

Source: USDI, BLM, 1982a.

TABLE 4-24

Alternative D: Regional Economic Impacts

Regional Impacts	Percent Change From Existing Level		
	Total Gross Output <sup>a</sup>	Labor	Income <sup>b</sup>
Livestock Grazing	+1.4	+0.8	+0.8

Source: USDA, FS, 1982a.

<sup>a</sup>The total sales of each sector within the region; includes sales to consumers within the region and sales to industries and consumers outside the region (exports).

<sup>b</sup>Income earned by all households within the region (salaries, wages, profits, rents, royalties, interest, etc.).



TABLE 4-25

## Alternative E: Changes in Ranch Income and Capital

Permittees	Net Ranch Income	Percent Change From Average Net Ranch Income	Percent Change in BLM Permits and Capital Value
Cattle Permittees			
Small (1-99)	\$ 7,775	+15	-26
Medium (100-199)	13,626	+37	-22
Large (200+)	52,583	+31	- 9

Source: USDI, BLM, 1982a.

TABLE 4-26

## Alternative E: Regional Economic Impacts

Regional Impacts	Percent Change From Existing Level		
	Total Gross Output <sup>a</sup>	Labor	Income <sup>b</sup>
Livestock Grazing	+1.1	+0.6	+0.6

Source: USDA, FS, 1982a.

<sup>a</sup>The total sales of each sector within the region; includes sales to consumers within the region and sales to industries and consumers outside the region (exports).

<sup>b</sup>Income earned by all households within the region (salaries, wages, profits, rents, royalties, interest, etc.).



## ENERGY REQUIREMENTS

Because no new rangeland improvements are proposed under Alternatives A and B, the only energy required would be for maintenance of existing administrative facilities and vehicles and operation of equipment during maintenance of existing rangeland improvements. Under Alternatives C, D, and E, construction of rangeland improvements would require equal expenditures of energy.

Specific types of land treatments have not been specified. The treatment used would determine energy requirements. Generally, burning and spraying require significantly less energy than chaining. The selection of methods for land treatments is the only significant means to conserve energy. The energy required for implementation of the selected alternative would constitute a very small part of total annual private, commercial, and industrial use in the planning area.

Curleaf mountain-mahogany



## SUMMARY OF UNAVOIDABLE ADVERSE IMPACTS, IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES, AND THE RELATIONSHIP OF SHORT-TERM USE OF THE ENVIRONMENT TO MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

Impacts (beneficial and adverse) discussed in the preceding sections of Chapter 4 are compared by environmental element and by alternative in a summary at the end of Chapter 2 (Table 2-5). Impacts of low significance or those of only short duration are not considered. The relationship between short-term uses of the environment to maintenance and enhancement of long-term productivity is also discussed for each resource by alternative in Table 2-5.

Unavoidable adverse impacts identified throughout Chapter 4 are summarized as follows:

### Vegetation

The loss of forage production, with a resultant decline in ecological condition and a possible reduction in rangeland site potential, could occur on 14 percent of the planning area under Alternative A and on 56 percent of the area under Alternative B. The severity of these impacts would increase with time. No unavoidable adverse impacts to vegetation are expected under Alternatives C, D, or E.

### Soils

Increased erosion could occur on portions of 11 allotments and one unallotted area under Alternative A and on portions of 21 allotments and one unallotted area under Alternative B. These are the same areas on which vegetation would be most severely impacted. Except for temporary localized soil loss, there would be no unavoidable adverse impacts to soil under Alternatives C, D, and E.

### Water Resources

Surface water quality could be degraded by higher sediment yield on portions of 11 allotments and one unallotted area under Alternative A and on portions of 21 allotments and one unallotted area under Alternative B where overgrazing occurred. Except for temporary localized soil loss where land treatments occurred, there would be no unavoidable adverse impacts to water under Alternatives C, D, and E.





Canada wildrye

### Animal Life

Unless there were significant changes in livestock grazing practices (i.e., distribution, periods of use, kinds of livestock grazed), big game populations would remain far below their biotic potential under Alternatives A, B, D, and E. Only Alternative C would provide sufficient high quality useable forage to enable big game numbers to increase. Only bison and bighorn sheep would meet UDWR's long-term management goals under this alternative.

### Visual Resources

Overgrazing in highly scenic, visually sensitive areas could adversely affect visual resources on 5 percent of the planning area under Alternative A and 45 percent of the planning area under Alternative B. Under Alternatives C, D, and E, rangeland improvements on 16 allotments and one unallotted area could violate VRM management class objectives, affecting 2 percent of the planning area.

### Wilderness

The effects of overgrazing could gradually become more apparent and violate BLM IMP non-impairment criteria in two WSAs and NPS proposed wilderness areas under Alternative A and six WSAs and NPS proposed wilderness under Alternative B.

Overgrazing by bison would continue on one unallotted area, affecting one WSA under Alternatives C and E. Because construction of proposed rangeland improvements must meet BLM IMP criteria, no other unavoidable impacts to WSAs would occur under Alternatives C, D, or E.

### Recreation

Overutilization caused by overgrazing would adversely affect primitive and sightseeing values on three allotments, one unallotted area, and one developed campground under Alternative A. Under Alternative B, vegetation overutilization would cause progressive degradation of sightseeing, big game hunting, and primitive values would adversely affect 12 allotments and one unallotted area. One unfenced, developed campground would be affected. Rangeland improvements on 16 allotments and one unallotted area would affect sightseeing and primitive values under Alternatives C, D, and E. Hunting and sightseeing values would be most improved under Alternatives C and E, with Alternative D causing adverse impacts to hunting and zoologic sightseeing.

### Cultural Resources

Ground disturbance during construction of rangeland improvements under Alternatives C, D, and E could inadvertently destroy or damage cultural resources. This would result in loss of scientific and educational information.

### Livestock Grazing

Permittees would sustain the most reductions under Alternative A, while there would be no reductions under Alternative B. In addition, there would be decreases in livestock productivity in the long term under Alternatives A and B. Nine permittees would lose their active preference on some allotments while 41 permittees (including the nine) would receive active preference reductions under Alternative C. Active preference reductions would affect 20 permittees and 38 permittees under Alternatives D and E, respectively.

### Socioeconomics

Reductions of permits would cause proportionate reductions in capital values of affected ranches under Alternatives A and B. Under Alternatives C, D, and E, reductions that actually caused a permittee to cut the number of livestock grazed on an allotment would result in lost income. All alternatives except C would result in reduced big game numbers, therefore lowering income to the local economy from hunters.







## CHAPTER 5

# CONSULTATION AND COORDINATION

### COORDINATION, CONSULTATION, AND REVIEW OF THE DRAFT EIS

The Draft Henry Mountain Grazing Environmental Impact Statement (EIS) was filed with the Environmental Protection Agency (EPA) and made available to the public on October 29, 1982. The EIS's availability and the public hearing held on December 1, 1982 in Loa, Utah were announced by the U.S. Department of Interior (USDI) in the *Federal Register* on October 29, 1982. News releases were prepared to alert local residents about the comment period for the Draft EIS. December 30, 1982 was originally established as the deadline for submission of written comments; this time frame was later extended to February 8, 1983, which allowed 121 days for public comment. The list of agencies, organizations, and individuals who received copies and were invited to comment on the Draft EIS is included on Page iii in this Final EIS.

Copies of the hearing transcript from the public meeting, along with the attendance list, are available for public review at the Henry Mountain Resource Area in Hanksville, Utah and at the BLM District Office in Richfield, Utah.

All written comments and oral testimony from the public hearing were reviewed for consideration in the preparation of this Final EIS. Those comments that presented new data, questioned facts and/or analyses, and raised questions or issues bearing directly on the Draft EIS were responded to. Testimony or letters which were general or did not contain substantive comments were reviewed but no responses were made.

Substantive comments received after February 28, 1983 are included in this Final EIS but no response to these comments has been made. The late comments, as well as all comments contained here-in, will become a part of the file maintained in the BLM Area and District Offices in Hanksville and Richfield, Utah and will be given consideration along with the Final EIS during the decision-making process.

Decisions on the selection of a grazing management program for the Henry Mountain Planning Area will not be made until at least 30 days after the EPA Final EIS Notice of Availability has appeared in the *Federal Register*. During that 30-day period, written comments on the Final EIS may be submitted for

consideration in the decision-making process. Letters should be sent to:

Mr. Donald L. Pendleton, District Manager  
Bureau of Land Management  
Richfield District Office  
150 East 900 North  
Richfield, Utah 84701

Oral and written comments received on the Draft EIS are listed on the following pages. After this listing are copies of substantive comments made at the public hearing and all comment letters received. Responses to the comments appear after the respective oral testimony or comment letter.

### ORAL TESTIMONY FROM THE PUBLIC HEARING

Commentor	Comment Number
Phil Pace, Pace Ranch, Inc. ....	1-2
Neil G. Jackson .....	3
Leo D. Jackson .....	4-11
John Jackson .....	12-15
Dwight Williams .....	16-39
Meeks Morrell. ....	40-42
Owen "LaNae" Albrecht .....	43-45
Terry Albrecht. ....	46-49
Bliss Brinkerhoff. ....	50-52
Keith Durfey .....	53-56
Charles Oliphant .....	57-58
Jack King .....	59-60
Dudley Brian,	
Wayne County Farm Bureau .....	61-62
Dwight Williams, Henry Mountain	
Resource Area Permittees' Committee. . .	63
Richard Pace, Pace Ranch, Inc., and	
Soil Conservation Service .....	64-67
Ralph Pace. ....	68-70
George Coombs, Coombs Sheep Ranch .	71-72
Tom Jeffery, Jeffery Ranches .....	73-74

### COMMENT LETTERS

Letters 60-61 were received after the deadline for submission of written comments (February 28, 1983). Therefore, these letters are included in this Final EIS but no response to comments is given.



## CHAP. 5 — CONSULTATION AND COORDINATION

Commentor	Letter Number		
Lynn Bagley .....	1	Kenneth H. King .....	31
USDI, Geological Survey .....	2	USDI, National Park Service, Glen Canyon	
USDA, Soil Conservation Service .....	3	National Recreation Area .....	32
USDI, Bureau of Reclamation .....	4	Six County Commissioners Organization ..	33
James Wood .....	5	Stanton Gleave .....	34
Dirk Van Vuren .....	6	Utah State University, Extension Service ..	35
Utah Farm Bureau Federation .....	7	Office of the Utah State Coordinator .....	36
Natural Resources Defense Council .....	8	USDI, National Park Service,	
Utah Division of State History .....	9	Rocky Mountain Regional Office .....	37
Henry Mountain Resource Area		Jack Gleave .....	38
Permittees' Committee .....	10	Steven Williams .....	39
WHOA! Wild Horse Organized		Henry Mountain Resource Area	
Assistance, Inc. ....	11	Permittees' Committee .....	40
National Parks and Conservation		Owen L. Albrecht .....	41
Association .....	12	Richard L. Pace, Pace Ranches, Inc. ....	42
Five County Association of Governments ..	13	Phillip G. Pace, Pace Ranches, Inc. ....	43
Humane Society of Utah .....	14	Otto Brinkerhoff .....	44
William C. Taylor .....	15	Randy Gleave .....	45
State of Utah, Office of the State		Ricky Gleave .....	46
Planning Coordinator .....	16	Scott Gleave .....	47
Wildlife Management Institute .....	17	Richard N. Warnick .....	48
Owen Severance .....	18	William Black .....	49
Stanley Wood .....	19	Jack V. King .....	50
Anthony J. Frates .....	20	Meeks and LaWana Morrell .....	51
Utah Native Plant Society .....	21	Utah Wilderness Association .....	52
Owen Severance .....	22	Orlo and Allen Durfey .....	53
Environmental Protection Agency .....	23	Elwood Morrell .....	54
USDA, Forest Service .....	24	Utah Cattlemen's Association .....	55
Southern Utah State College .....	25	Keith A. Durfey .....	56
Terry L. Albrecht .....	26	A. C. Ekker, Cross S Cattle Company ....	57
Utah Wool Growers .....	27	Leo D. Jackson .....	58
Tercerco Corporation .....	28	Leo D. Jackson .....	59
Wayne County Commissioners .....	29	Bliss Brinkerhoff .....	60
Defenders of Wildlife .....	30	Neal George Jackson .....	61



Comment 1: Phil Pace

"We run in the Hartnet. I'd like to have our category changed from the Classification "C" Custodial to Category "I" which will improve the range. There's no chance of improving in that Custodial, it being next to the Park."

Response: Categorization does not preclude implementation of rangeland improvements, but is used only for prioritization of allotments. The initial categorization and the criteria used to categorize allotments into maintain, improve, or custodial categories are subject to public comment. If new criteria and/or information are developed, allotments will be reanalyzed to determine if a change in category is warranted. Also, if the resource situation of an allotment changes following the implementation of management decisions, the allotment may be recategorized (USD1, BLM, 1982b).

An allotment can be moved from one category to another if the following changes in and/or additional data pertaining to the following criteria are obtained: (1) rangeland condition; (2) present management situation; (3) resource potential; (4) presence of resource-use conflicts or controversy; and (5) opportunity for positive economic return on public investment.

BLM funds for constructing rangeland improvements shall be allocated first to the higher or highest ranked allotments. The highest priority in any category shall be given to rangeland improvements funded entirely by private or other contributions. A higher ranking may also be given to improvements that are needed and partially funded by contributions.

The first priority for appropriated funds in rangeland improvements is for the maintenance of improvements that continue to serve a valid purpose and for which BLM has maintenance responsibility. The second priority is for design, construction, and maintenance of new rangeland improvements that conform with AMPs, HMPs, and herd management plans, regardless of the categorization.

Under the current policy for managing BLM public lands, livestock permittees are encouraged to invest in new rangeland improvements and maintain existing improvements within their grazing allotments.

Comment 2: Phil Pace

"And I'd also like to know what happens to our grazing funds, 8100 fund, when the other Custodial there are not turned back in. If not, then why do we pay them if they're not going to be put back into the range and I propose they manage it for an optimum livestock production."

Response: The 8100 funds (50 percent of grazing fees paid) are used to fund rangeland rehabilitation, protection, and improvement projects. Since funds are insufficient to pay for all desired projects, they are prioritized.

In FY 1982, 8100 funds in the Henry Mountain Planning Area were used on the following projects:

Project	Allotment
Poison Wash Generator Motor Replacement	Burr Point
Cottontail Spring Maintenance	Cedar Point
Cass Creek Pipeline	Bullfrog
McWhittan Pipeline Extension	Nasty Flat
Reservoir Construction/Maintenance	Burr Point, Sandy 2, Sandy 3, and Waterpocket.

Categorization does not preclude the use of 8100 funds on any allotment. Naturally, as grazing fees are reduced (from \$2.31 per AUM in 1981 to \$1.40 per AUM in 1983) the amount going to 8100 projects is also reduced significantly. Based on average licensed use in the planning area, the amount going to 8100 projects from fees collected this year will be approximately \$21,000. Considering current costs, this amount will not fund many rangeland improvements.

Comment 3: Neal George Jackson

"Concerning our allotment I do not believe that any of them, the Blue Bench, the Cathedral, or the Pennell, have needed to be cut because I see no damage in forage. I see no declination in plant species. I realize that you have spent many years doing this study, for several years, but I feel like your study is very one-sided."

Response: Of the 28 trend plots on Blue Bench, Cathedral, and Pennell Allotments, only three show a downward trend (see Appendix 3 of this Final EIS). These studies indicate that, except for localized problems of distribution, past average licensed use has been within the rangeland's grazing capacity. However, past average use on these allotments has been only 59 percent of active preference. The soil-vegetation inventory supports 10-12 years of monitoring and trend studies in indicating that grazing use on these allotments could not sustain a 41-percent increase without adversely affecting forage production and rangeland condition.

Comment 4: Leo D. Jackson

"I do feel that this entire EIS is very, very erroneous and its assumption that 24 out of 28 allotments on the Henry Mountain Area needs to have their livestock numbers reduced."

Response: The grazing capacities in this EIS are based on 10-12 years of monitoring studies, supported by a recent soil-vegetation inventory. Of the 22 grazing allotments in the planning area, the actual numbers of livestock would be reduced on six allotments, not 24, under Alternative E, the preferred alternative.

Comment 5: Leo D. Jackson

"We were adjudicated, I think, in 1964 or '62, and at that time, we went over the range, I went on a range survey and they determined where the allotment boundaries should be placed, how many AUMs should be placed on each allotment, and at that time, I was told by the Area District Manager whose name was Leishman that there would be no further reductions in livestock AUMs in the Henry Mountain Area, that that would be the final."

"Since that time, we have went through several adjustments, each time we've had a drought circumstance or whatever adjustment and the procedure has always been the same. The same procedure to me was exactly what was supplied to us in the meeting they had about a month ago, stating that a study has been made and the results come out the same. The results come out that the livestock should be reduced."

Response: Proposed adjustments were made for the adjudication process over a 3-year period, as shown on the following table. After 2 years, the range was evaluated; further adjustments were made where needed during the third year.



PUBLIC HEARING COMMENTS

Allotment	Proposed Active Preference (AUMs)			Actual 3rd Year Active Preference	Current Active Preference
	Mandated For Adjudication 1966-67	1967-68	1968-69		
Blue Bench	6,660	5,469	4,108	--	4,598
Bullfrog	5,571	4,272	3,435	--	3,442
Burr Point	6,246	5,129	3,853	--	4,417
Cathedral	3,311	--	--	--	B 2,503
					P 495
					(2,998)
Cedar Point <sup>j</sup>	3,483	2,860	2,148	--	1,892
Crescent Creek	405	--	2,332	--	332
Hanksville	8,688	7,135	5,360	--	6,000
Hartnet	2,939	--	--	--	B 1,021
					P 1,917
					(2,938)
Nasty Flat <sup>h</sup>	478 <sup>b</sup>	392	--	--	474
North Bench <sup>i</sup>	372 <sup>b</sup>	--	--	--	456
Pennell <sup>j</sup>	3,250	--	2,665	--	2,594
Robbers Roost <sup>a,k</sup>	--	6,605	--	--	5,288
Rockies <sup>a</sup>	9,971	7,647	5,656	--	5,872
Sandy 1	2,080 <sup>c</sup>	1,644 <sup>d</sup>	603 <sup>e</sup>	1,238 <sup>e</sup>	B 978
					P 282
					(1,260)
Sandy 2 <sup>g</sup>	4,671 <sup>c</sup>	3,696 <sup>d</sup>	1,356 <sup>e</sup>	2,400 <sup>e</sup>	2,228
Sandy 3	1,654 <sup>c</sup>	1,308 <sup>d</sup>	480 <sup>e</sup>	985 <sup>e</sup>	B 305
					P 680
					(985)
Sawmill Basin <sup>l</sup>	--	--	205	--	166
Sewing Machine <sup>a,j</sup>	2,963 <sup>c</sup>	--	--	--	1,600
Steel Butte	7,787 <sup>d</sup>	7,007 <sup>e</sup>	4,282 <sup>f</sup>	--	5,034
Trachyte	2,610	2,143	1,610	--	2,853
Waterpocket	5,024	3,852	3,345	3,345	B 3,165
					P 182
					(3,347)
Wild Horse	--	--	--	--	1,067

Note: AUMs listed are all for BLM lands unless otherwise indicated. B = BLM lands, P = National Park lands.

<sup>a</sup>BLM and Glen Canyon NRA lands.

<sup>b</sup>1961

<sup>c</sup>1965

<sup>d</sup>1966

<sup>e</sup>1967

<sup>f</sup>1968

<sup>g</sup>ifference is due to loss of Capitol Reef National Park AUMs.

<sup>h</sup>AUMs apparently restored by Ougout and South Creek seedings.

<sup>i</sup>AUMs increased by improved rangeland condition.

<sup>j</sup>Change in livestock class from sheep to cattle brought AUMs to a lower level.

<sup>k</sup>Moynier Brothers lost 1,325 AUMs by failure to reapply.

<sup>l</sup>Change due to AUMs lost (suspended nonuse) because of overgrazing by bison and cattle on Ellen Creek burn seeding.

Some allotments were reduced; later, part of these reductions were restored because of improved rangeland condition or land treatments. As you stated, there have been several periods of drought when nonuse was taken. Since adjudication, the only permanent adjustment made to active grazing preference was in Sawmill Basin Allotment, which affected two permittees. These permittees took suspended nonuse because of overgrazing along Bull Creek, resulting from bison and cattle use in the Ellen Creek burn seeded area (Davis, 1983).

Comment 6: Leo D. Jackson

"Looking at it from an overall viewpoint, the only conclusion I could come to was that somewhere down the line the wildlife resource people have preference over the people who are using it for grazing domestic livestock."

Response: Congress has mandated that BLM-administered public lands be managed on a multiple-use, sustained-yield basis. This includes providing forage and habitat for fish, wildlife, and domestic animals.

The alternatives in the EIS present a range of options. Alternatives C, D, and E equate vegetation utilization with grazing capacity. C gives preference to big game, and D gives preference to livestock. Alternative E, the preferred alternative, constitutes a multiple-use balance. While there would be reductions in active preference under this alternative, most permittees could increase grazing by an average of 62 percent over the present average licensed use. Livestock would use 81 percent of the forage, while big game would be allowed 19 percent. Most of the 5,154-AUM increase to big game would be for bighorn sheep (3,865 additional AUMs), permitting their population to approach the numbers estimated as existing prior to livestock grazing in the area. No increase in bison grazing levels (the principal competitor for cattle forage) is proposed. In summary, wildlife were not given preference over domestic livestock grazing under Alternative E.

Comment 7: Leo D. Jackson

"This EIS lists the critical habitat for the bison and it shows particularly on a map on the west side of the Henry Mountains--not critical but crucial area habitat, but for 20 years the bison herd was in the north Henry Mountains. It was in the Hanksville Allotment. If this EIS statement had been written then, would that have been the crucial area? How come they're not still up there?"

Response: Historical records indeed show that the bison herd used the North Henry Mountain area (Burr Point-Hanksville Allotments) as year-long range approximately 20 years ago. Because this range was crucial to the existence of the herd, it would have been considered crucial habitat at that time. However, since the herd has moved from this range, the Robber's Roost area can no longer be considered crucial habitat. Human harassment associated with the corralling operation is believed to be the major factor for the herd's migration to the mountain proper area of the planning area.

Population data show that, during the period of time the bison occupied the desert portion of the planning area, the herd increased at an average annual rate of approximately 4 percent. The herd has increased at an average rate of 9 percent since it has occupied the mountain area. These data suggest that the area currently utilized by the herd provides better habitat conditions than the desert range and, at this time, is considered crucial to the existence of the herd.



Comment 8: Leo D. Jackson

"A corral was built at Hanksville to corral the cattle some 20 years ago--not the cattle, but the buffalo--for the primary purpose of vaccinating them for bangs and, if they went to all the trouble to build an elaborate corral up there, why did they build it in an area which is almost alien to this area and, according to this map, to the habitat of the buffalo herd?"

Response: Historical accounts show that, soon after the 1964 corraling operation to vaccinate the bison herd against bangs disease, the animals changed their use patterns and migrated to the mountain proper area of the planning area. Since this time, only an occasional stray bull has been observed using the desert range. Therefore, UDWB does not currently consider this range crucial to the existence of the herd.

Comment 9: Leo D. Jackson

"My contention is that the continual increase of the buffalo herd--at this time we were told that the numbers of buffalo would be 72 head. Now, in this statement, it's estimated at something like 250 head, and most of the cattlemen estimate the number to be much more than that. So, the conclusion I have drawn is that they told us in that prior meeting, they told me in the prior meeting, that there was no restraints on the wildlife except the voluntary commitment or statement from the wildlife people that they would kill off the old animals and maintain the herd at such a level, but it's gradually increased and yet all of our permits and our livelihood is being jeopardized as they attempt to reduce all of the livestock in the Henry Mountains proper to make room for an increase in buffalo and the buffalo herd."

Response: BLM agrees that the bison herd has increased over the years. It should also be pointed out, however, that since the time there were 72 animals, numerous rangeland improvement projects have been undertaken by the BLM to increase the grazing capacity on the Henry Mountains. Because it is BLM's objective to manage for multiple use, benefits from rangeland improvements are used to enhance, maintain, and improve wildlife habitat as well as livestock grazing capacity. Some of the increase in bison numbers can be attributed to these improvement projects. It should also be pointed out that UDWB helped finance many of these projects. In addition, UDWB has leased eight State sections and purchased the AUMs on Dry Lakes unallotted area specifically for bison and mule deer use.

Comment 10: Leo D. Jackson

"Anyway in 1962, when we were moving our cattle up there, we discovered many, many deer carcasses under the cedar trees and the oak trees in the lower Henry Mountain area and we discovered evidence of an awful lot of mountain lion and in that year and the subsequent years there were very few deer remaining in our allotment or allotted area. They just deserted and there were very many carcasses and we also had some cattle loss from lions. Since that time the deer herd hasn't had a chance to increase because the coyotes are consuming the fawns. You can blame it onto poachers or whatever else you want to, but until this last year I never saw a deer, a doe and a fawn on the Henry Mountains. I did see two last summer in the Trachyte area, and I don't think we're going to get any increase in the deer herd and I'd like to see them increase, but I don't think we're going to get an increase in the deer herd until we can get a control on those predators and, when the sheep herd left the Henry Mountains, they moved into the deer herd."

Response: Although there are studies that show predation can, under certain circumstances, hold deer populations below the grazing capacity of their habitat, such areas are usually isolated habitats much smaller than the Henry Mountain Range. To date, there are no "hard" data that show predation is the major factor limiting the deer population on the Henry Mountains. In all probability, a combination of such factors as poor quality summer range, poaching, thrill kills (i.e., shooting an animal just to kill it), disease, and predation are responsible for low deer numbers on the Henrys.

Comment 11: Leo D. Jackson

"I guess my time is about up but I feel that we are being discriminated against, the livestockmen, we're being pushed out of the industry to make a wilderness area on habitat for the wildlife and primarily for the buffalo herd."

Response: An area's designation as wilderness would not significantly affect grazing use. Livestock grazing could continue at existing levels as long as land resources were not degraded. This is essentially the same mandate BLM has for managing livestock grazing on other public rangelands.

Regarding bison use levels, it should be recognized that, under Alternative E, total big game and bison use would constitute only 19 and 3 percent, respectively, of proposed use. A significant amount of that use is non-competitive (i.e., livestock and big game would not compete for this forage because of differences in period of use, plant species, and/or topography). Eighty-one percent of the forage is proposed for livestock use, and use would increase 62 percent over average licensed use under Alternative E. Thus, it would not appear that the livestockmen were being discriminated against.

Comment 12: John Jackson

"They don't spend their time out in the rough country, they're out in the non-railed reseeded areas, they spend their time on the reseeded areas that was mainly done to improve the feed for the cattle and I can't see how the cattle can take the whole blame when the buffalo's spending all of their time in these reseeded areas."

Response: Although bison heavily use chained and seeded areas, they have also been observed along the entire western slope of the mountain proper area. Mule deer and cattle also utilize these areas heavily. Inventory data show that these chainings provide a major portion of grass production for the mountain allotments. BLM chained and seeded these areas to benefit both big game and livestock; UDWB and livestock permittees assisted in this effort.

Comment 13: John Jackson

"We will refer to Page 17 as a basis for evaluation of feed that was available and I could point out, if you would look at the Sandy 2 Allotment, that forage available was for 715 AUMs and the average use that's been used in the last 5 years is 1,509. Do 70 or 80 cattle die off every year because the feed wasn't there and, if this one is not accurate, what about the rest of them and, also the Crescent Creek Allotment is a similar situation, and so I say I wonder how accurate this really is. Can we really go by this estimation or evaluation of forage available?"

Response: The forage available to livestock, as indicated in Table 2-2, is the proper use level at which vegetation can sustain grazing without damage.



In general, proper use means that average annual utilization of key plant species is maintained within the 40- to 60-percent range, not to exceed 60 percent. (The fourth column of Appendix 3, Table 1, shows key plant species for each allotment.)

For example, Table 2-2 indicates that Sandy 2 Allotment produces enough forage at proper use levels to furnish 715 AUMs for cattle, 122 AUMs for bison, and 29 AUMs for mule deer. Average licensed use by cattle on this allotment has been 1,257 AUMs (corrected in this Final EIS); however, data indicate that this level has exceeded proper use. Although there is sufficient forage on the allotment to keep cattle from starving to death, overutilization adversely affect rangeland condition and forage production.

Comment 14: John Jackson

"So, it's a little bit hard for me to realize how someone else, such as the Bureau of Land Management, proposes to manage the livestock industry. They don't run livestock themselves, they don't know anything about cattle or they'd be in that business and so everything that I've heard in the meetings prior to this, 'That we're going to manage the cattle. We want to manage the livestock.'"

"They don't want to manage the livestock, they want to manage the livestock owners."

Response: BLM's purpose is not to manage livestock or livestock owners. In FLPMA (1976), Congress directed that the public lands administered by BLM be managed on the basis of multiple use and sustained yield. Section 102(a)(8) directs: "The public lands be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resources, and archaeological values; that, where appropriate, will preserve and protect certain public lands in their natural condition; that will provide food for fish and wildlife and domestic animals; and that will provide for outdoor recreation and human occupancy and use..."

Inherent in the multiple use concept is "...the harmonious and coordinated management of the various resources without permanent impairment of the land and the quality of the environment..." Domestic livestock grazing is one of the principal or major uses and, as indicated above, must be managed to preserve or provide for the other values and uses. This requires that the rangeland's grazing capacity not be exceeded. As indicated in Chapter 3 of this Final EIS, however, the rangeland's grazing capacity is presently being exceeded in some allotments.

The grazing levels proposed under Alternatives C, D, and E would correct this situation and adjust grazing use to grazing capacity. Under Alternative E, the preferred alternative, livestock permittees could increase their stocking above average licensed use on all allotments except six. The reduction on the six allotments under this alternative would amount to 2,179 AUMs. On the other 16 allotments, grazing use could increase by 19,539 AUMs (8,023 AUMs of this increase would be sheep use). Thus, 36 of the 58 permittees could increase their grazing use.

BLM will not manage or dictate those decisions which are the responsibility of the permittees, but will endeavor to ensure that lands are managed as Congress directed and that grazing capacities are not exceeded.

Comment 15: John Jackson

"If there seems to be a problem of overstocking in one area, we can do more range improvements to create more feed and so I am opposed to this because I simply can't, if anything, improve conditions and there'll be more for livestock and more wildlife also."

Response: The potential rangeland improvements identified under Alternatives C, D, and E (summarized on Table 2-4) would reduce problems of overgrazing and livestock distribution. However, rangeland improvements would not solve all problems of overstocking. Where overstocking could not be remedied with rangeland improvements or grazing systems, the only alternative is to reduce the level of grazing use.

Comment 16: Owight Williams

In this allotment we have 169,038 acres of land: of this 75 percent is rangeland, 3 percent of this land is climax, 11 percent late, 64 percent mid, early 22 percent. This shows that 88 percent of the land is in an upward trend or an improved condition, which to me is a good record. Now, on this allotment you have nine trend plots. This is a plot 5 foot by 5 or in neighborhood of that size.

"This means you have one of these plots for every 18,183 acres of land, which I feel is very inadequate. There should be more information supplied where these impact plots are located, how often they are read, and, most of all, the users of the land should be involved with the reading of these plots, and certainly the users should have some input into the placing of these plots."

"I don't know all the locations of these plots, but the two I know of are not representative of the area. One is close to a water hole and on the trail out of the water hole. The other one is on a driveway and on top of a gravelly knoll, which has had the soil removed and sent through a crusher."

"I feel very strongly that we, as users, be involved in trend plots, in the choosing of plots, and the reading with an increase of plots."

Response: Table 3-3 shows that rangeland condition is improving on only 12 percent of the Rockies Allotment. This table also shows that production is estimated to be only 49 percent of potential. The data on ecological stage do not indicate trend or rangeland condition for grazing purposes. Ecological stage or condition represents an assessment of the state of the vegetation in its progression to what would be the climax community (species mix and percent composition of each) if the area were undisturbed by man (i.e., no livestock grazing, fire control, etc.).

Budgetary, personnel, and time constraints prohibit sampling all areas of an allotment. Therefore, BLM uses a stratification (key area, key species) concept in locating plots for rangeland studies to evaluate the effectiveness of grazing management. If required (by a change in pattern or type of use, for example) the plots may be relocated. Permittees have had and do have a standing invitation to participate in selection of plot locations and in the reading of plots.

Comment 17: Owight Williams

"I quote from R-4 Range Analysis Handbook, 'Simplistic mathematical formulas will not be used when making multiple-use management decisions as to the number of animals that can be managed and cared for properly on the available range.'"

"Reading the footnote on Table 3-3, I think this is what was done."



Response: The forage production estimates and determinations of monitoring study results are all based on site-specific data collected on the ground. Mathematics were used only to convert or condense raw data into a manageable format. (Note: The R-4 Range Analysis Handbook is a Forest Service manual pertaining to Region 4.)

Comment 18: Owight Williams

"If a study of the area could be made, you may find that from R-4 Range Analysis, 31-3-5, i.e.: 'The livestock do not eat browse during this period of year and may actually increase browse production by reducing the competition from herbaceous vegetation.' So, instead of the cattle being detrimental to the deer population, they may be an advantage."

Response: Competition for browse between deer and livestock is not an issue or management problem on the Henry Mountains. Current literature and inventory data suggest that competition for forbs (herbaceous vegetation) is a problem, as analyzed in the Animal Life section of Chapter 4 in this Final EIS.

Managing for increased forb production on limited summer range is difficult because livestock and deer use this forage on the same areas simultaneously.

Comment 19: Owight Williams

"So wildlife AUMs should not be allocated. It should be determined by the amount, and I quote again: 'of forage available and where it is located and when it is needed.'"

Response: Allocating forage to both livestock and big game can stabilize the use of an allotment by protecting the permittees' grazing privileges and preserving forage for big game. Redistributing AUMs among livestock and big game for every short-term fluctuation in big game populations would reduce the livestock permittee's ability to plan. Also, forage cannot be used by livestock while being reserved for big game; this would, in effect, hold the big game population below allocated levels. In this Final EIS, forage use levels for big game and livestock were based on rangeland suitability, seasonal distribution, and diet of the animal concerned.

Comment 20: Owight Williams

"They should review the records of historical levels of use by the consumers of the allotments. They should determine the limiting factors for the various species using the brood [sic. brood] guideline, the data available, and their professional judgment." That quote was also taken from R-4, 31-3-6."

Response: The recommended levels of grazing use for each allotment under Alternatives C, O, and E were derived from 10-12 years of monitoring studies, supported by the soil-vegetation inventory. However, data generated from the soil-vegetation inventory were modified by application of each of the factors to which you refer (see Staff Reports, Appendix 3 of this Final EIS).

Comment 21: Owight Williams

"Average utilization of key species prior to 1976 shows 566. We need more information here. Was this a 1-year study and where on the allotments were these taken? Were they taken in a drought year or a good year? For, after 1976, no utilization studies have been taken."

Response: The utilization data given in Appendix 3, Table 1, are a composite of all recorded utilization taken prior to 1975 until 1981 (see footnote b). Where there is one entry in the percent utilization column, this indicates that only 1-year's data were taken. Where there are two or more entries in this column (i.e., 25-64), this indicates the amount of utilization recorded during the period involved. In some instances, utilization was not recorded as a percent but as L = low, 0 to 40 percent; M = medium, 40 to 60 percent; or H = high, 60 to 100 percent.

Utilization studies were usually done near the trend plots and were recorded without regard to the precipitation for that year.

Comment 22: Owight Williams

"But, in the next column, we read AUMs based on inventory: 3,988 cattle, 875 sheep. This is more than the actual use of 3,554 cattle but in percent changed from preference use, we have a 17-percent downward trend. But with a 36 percent of change from licensed use."

"I feel there is an error in actual licensed use."

Response: In Table 3-3, the "Percent Changes from Preference" column refers to the percent of active preference requiring reduction to bring grazing use within forage production. For the Rockies Allotment, active preference presently exceeds forage production by 17 percent. The next column "Percent Change From Licensed Use" indicates that, for the Rockies Allotment, grazing use could increase 36 percent over present average licensed use.

Percentages are not based on range trend but on trend and monitoring studies, supported by inventory data. Average licensed use figures have been corrected in this Final EIS in response to the Henry Mountain Resource Area Permittees' Committee comments. Also, see Tables 2-2, 2-3, 3-3, and 3-13 in this Final EIS.

Comment 23: Owight Williams

"Because of the drought years of 1977 and 1978, you show these years in the 5-year period of average use. When the BLM asks you to leave a range and not use it because of a condition such as drought, then I feel this should not be used in an average use of AUMs."

"Also, during the years of 1976 and 1979, we find the cycle of cattle was declining and people had smaller numbers. To say that these years were ideal times and use of range was average, I think is inaccurate."

"If past records were available, these figures of average use would be nearer to the preference AUMs."

Response: The average licensed use figures were changed in response to comments by the Henry Mountain Resource Area Permittees' Committee. The description of Alternative A in Chapter 2 reflects this change, and reads as follows: "Livestock use would continue at the average level established from 1976 to 1982. The years receiving the highest and lowest use were dropped and the remaining 5 years averaged to arrive at the average licensed use level."

Refer to Appendix 3, Table 2 and Figure 2 for precipitation data.

Comment 24: Owight Williams

"Overall appearance of allotments visited was good considering inherent site limitations. The abundance and vigor of desirable and preferred forage species was impressively high, considering the use history of the area and the recent drought. Current livestock use and management appear to be achieving



the range management goals for range improvement through control of livestock use. Special notes as desirable were: (1) four-wing saltbrush, (2) winter-fat, (3) Indian ricegrass, (4) dropseed species, (5) needle-and-thread grass, (6) desert molley, (7) globemallow, (8) galleta grass, (9) sand sage, (10) Bigelow sage, and (11) Castle Valley clover. Climatic conditions conducive to plant growth and development this past year and since the recent drought (1975-77) have at least made the abundance of these desirable species more obvious and visible in contrast to this aspect during the recent drought years."

Response: You are correct. In many allotments, BLM studies indicate that current livestock use does not exceed forage production.

Comment 25: Dwight Williams

"Potential for range improvement is high in the pinyon-juniper and oak zones. Fire and seeding would appear to be the most appropriate management tool for vegetative manipulation in these areas. Existing chaining exhibit many small trees that were not effectively controlled mechanically, increasing the need for additional treatment as a maintenance measure. Fire would leave adequate and naturally appearing tree-covered areas for wildlife cover. A recent burn on the southeast end of the Boulder Mountains produced results that might be expected from burning on the Henry Mountains."

Response: Figure 4-1 in this Final EIS gives approximate locations for potential rangeland improvements, including land treatments. However, specific land treatments (shown on Table 2-4) have not been identified for each site because it is not known at this time what constraints would be placed on the treatment measures prescribed. Fire is a useful and effective management tool and will receive consideration and be used where it is determined the most effective, expedient, environmentally acceptable, and economical method.

Comment 26: Dwight Williams

"Potential for use of water development as a management tool is also high. Since many areas have inadequate or no existing water, these areas could make substantial contributions to overall range improvement and management by relieving grazing pressure around existing water. Establishment of water development as a priority range improvement practice is recommended and would benefit the rangelands, wildlife, and livestock."

Response: BLM agrees with the potential benefits of additional water developments. Table 2-4 of this Final EIS lists proposed water developments for Alternatives C, D, and E. Figure 4-1 gives approximate locations for potential rangeland improvements.

Comment 27: Dwight Williams

"I would like to ask that further studies be taken to evaluate this allotment [Rockies Allotment] before any reduction from the preference AUMs be taken and, if any additional AUMs be given, they should be given to suspended AUMs."

Response: On allotments where monitoring and trend studies, supported by the soil-vegetation inventory, show that livestock use has resulted in vegetation overutilization, the Area and District Managers will adjust numbers to the indicated grazing capacity. However, in a meeting with the Henry Mountain

Permittees' Committee, held at Loa, Utah on December 1, 1982, the District Manager indicated that reductions in active preference AUMs would be carried as suspended nonuse unless future monitoring studies indicate that adjustments should be made (See the Monitoring Program section, Chapter 2 in this Final EIS). If additional AUMs become available, suspended nonuse will be returned to active preference.

Comment 28: Dwight Williams

"So, I feel as is plainly stated on Page 80 of this Environmental Impact Study, and I quote: 'Reviews of this EIS, however, should recognize the limitations of vegetation inventory data. While this data is adequate for purposes of planning and analysis, it must be supported by the results of monitoring studies before making forage allocation decisions.'"

Response: BLM concurs that one-time inventories do not provide sufficient data to make forage allocations. However, because several years of monitoring and trend study data do exist on most allotments, supported by a one-time range survey which verified past monitoring studies, sufficient data are available to make forage use decisions for the majority of allotments in the Henry Mountain Planning Area.

Comment 29: Dwight Williams

"I would also make the request that, before any reductions be taken, I be given the right to present to you an alternative to the five alternatives in this book."

Response: Additional comments or alternatives may be submitted to the District Manager for consideration in the decision-making process within 30 days after publication of the Final EIS. In a meeting with BLM on December 1, 1982 in Loa, Utah, the Henry Mountain Resource Area Permittees' Committee decided to submit its recommendations with approval from all users and not recommend an Alternative F. Comment Letter 40 in this Final EIS is from the Permittees' Committee and lists its recommendations.

Comment 30: Dwight Williams

"The Affected Environment section should be expanded to include a section on past grazing history. Specifically, you should include tables showing past levels of grazing by cattle and sheep for both active preference and actual use."

Response: It is true that past grazing levels are reflected in the present ecological rangeland condition. The table shown in Oral Testimony 5 is a reconstruction of past average licensed use. Table 3-13 shows the past 7 years of average licensed use.

In addition to ecological rangeland condition, BLM analyzes trend in condition, utilization, and forage production. Present levels of active preference and average licensed use (in lieu of actual use), as agreed to by representatives of the Henry Mountain permittees, are the appropriate benchmarks to use in analyzing rangeland condition because these data correspond closely to the period of time BLM has been collecting data.

Comment 31: Dwight Williams

"Analysis of this information would likely show that the BLM has followed a liberal policy of converting sheep to cattle with the end result being a



## PUBLIC HEARING COMMENTS

higher active preference level for cattle than can presently be supported. During the same period, permittees who have always grazed cattle have experienced reductions to the point where some have been forced from business or have seen their operations reduced to the point where they are marginal at best."

**Response:** The analysis used in this EIS was based on the existing situation. An environmental assessment will be completed before future conversions are made. These conversions will be based on available forage and will be made only after consultation with interested parties and/or user groups.

**Comment 32:** Dwight Williams

"The economic analysis for Alternative E seems to be seriously flawed. The analysis appears to be based on the assumption that, even though active preference levels will be reduced, average use will increase and the net result will be an increase in ranch income."

"If this is in fact the assumption the economic analysis is based on, it should be supported by a demand analysis in the Affected Environment section. The demand analysis should clearly show past and existing grazing levels and projections of future use. There should be documentation that supports projections of future use."

"I suggest the following is more likely what will actually occur:

"Rancher A grazes cattle and has active preference for greater numbers than he has grazed for the past several years and has been taking partial nonuse (25 percent or greater)."

"Rancher B holds a permit to graze cattle, but has not utilized his permit for several years, taking total nonuse."

"Rancher C grazes cattle and utilizes his full permit."

"Rancher D holds a permit to graze sheep and is either out of business or has not filled his permit for several years."

"Now assume active preference on the allotment is reduced by 20 percent for cattle and increased 10 percent for sheep:

"Rancher A takes a 'paper cut', the value of his permit is reduced, but his income is not affected one way or the other."

"Rancher B takes a 'paper cut', his permit value is reduced, but income is not affected."

"Rancher C experiences an actual cut with a corresponding reduction in both permit value and income."

"Rancher D receives an increase and, in the unlikely event he should get back in business, he would experience a potential increase in income and a 'windfall' in increased permit value."

"The net effect, when each individual situation is considered will be:

1. Reduction in permit values.
2. Reduction in ranch income.
3. Reduction in returns to the Treasury.
4. Continued underutilization of the grazing resource.
5. The ranchers who fully utilize their permit and, therefore, depend on it the most are the ones penalized.

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"In order to accurately assess the economic effects, a much more detailed analysis is needed. As a minimum, the following information should be included:

1. An analysis of individual permittee use over the past 5 to 10 years, to show what portion of their active preference each has used. Some adjustments will be necessary to compensate for years of low use caused by drought or other such conditions.
2. A complete demand analysis to show what percentage of active preference each permittee is projected to use in the future. The assumption that all permits will be filled to capacity is in error and cannot be supported.
3. Revised ranch income figures. The conclusion that a reduction in active preference levels as proposed by Alternative E will somehow result in a 15 to 37 percent increase in net ranch income (Table 4-25), simply cannot be supported by the information in the DEIS or for that matter, by logic.

**Response:** Your observation is correct. For example, if a permittee received a reduction, but the new active preference was higher than his actual use, he could increase his stocking to the new level and, therefore, increase his income.

As stated in the Socioeconomic section of Chapters 3 and 4, the budgets used in this EIS are averages and, therefore, can only be interpreted as indicating relative changes in a general way. Impacts to individual permittees can be expected to vary greatly from these budgets. A more detailed and less constrained analysis is available in the study cited in the EIS (Jacobson, 1981) and may be more useful in assessing individual impacts.

Because of the number of variables involved (e.g., future availability and distribution of forage), it is impractical to develop a demand analysis, as suggested in your comment.

The socioeconomic analysis in this EIS is based on the assumption that permittees would use all AUMs allotted to them. In accordance with Grazing Regulations 43 CFR 4170.1-2, permittees will be notified during implementation of the grazing management program that they must make substantial use of their active grazing preference. Applications for substantial nonuse will not be approved for a period of 2 years (except in the event of drought, fire, or other emergency that reduces the forage resource). "Failing to make substantial grazing use as authorized for 2 consecutive fee years may result in the cancellation of the grazing preference only to the extent of failure to use..." (43 CFR 4170.1-2)

Transfers of grazing preference (in whole or in part) will be subject to adjustments in grazing use to the allotment's grazing capacity, as indicated by monitoring studies and the soil-vegetation inventory (see Table 2-2 in this Final EIS). Following the 2-year period referenced above, remaining active preference will be adjusted to the allotment's grazing capacity.

**Comment 33:** Dwight Williams

"For just one minute I'd like to speak now of another allotment called the Little Rockies Allotment in this area."

"Here again is the work of a Government bureaucracy."



## PUBLIC HEARING COMMENTS

"Making an extra allotment and taking AUMs that have been used by permittees."

"I can testify that this plan for this allotment has been in print for some years. I know when I was a Commissioner in Wayne County in the 70s that I had the opportunity of seeing in print from Denver the recommendations or plans for this allotment which then stated that there would be no livestock grazing in this allotment. I went to the BLM officials in this district then and protested this decision but was told that I was wrong; that there would be livestock grazing."

"Now, I read in this EIS that in the Little Rockies Allotment there will be no livestock grazing."

"Why should livestock grazing be excluded from this allotment?"

Response: Under Alternatives A, B, C, and E, no AUMs in the Little Rockies would be allotted to livestock. Under Alternative D, 85 AUMs are allotted for livestock use. Table 2-3 shows the proposals for forage use by alternative.

At the time of adjudication (1969), boundary descriptions were agreed on and signed by permittees. The Little Rockies unallotted area, as shown on the present allotment map, was not included in any of these allotments and was listed in the Draft EIS under unallotted areas. It is located south of Cedar Point, east of Trachyte Creek and Trachyte Point, and extends to the Dirty Devil River on the east and the Colorado River on the south. This rugged area includes North Wash, Butler Canyon, Stair Canyon, and Marinus Canyon. It has not been grazed by livestock since adjudication, except by one permittee who used it on a temporary nonrenewable basis (Davis, 1983).

The URA states that this allotment was not allotted to livestock use because of several factors which limited its feasibility. These include a lack of areas suitable to livestock use (i.e., steep slopes, rock outcrops, and sparse cover) and Highway U-95 down North Wash.

The Rockies Allotment including Mt. Holmes and Mt. Ellsworth, is not part of the Little Rockies unallotted area.

If minor boundary modifications are necessary to eliminate trespass problems, these will be made in consultation with involved permittees during a field review.

Comment 34: Dwight Williams

"It's a well known fact that if all of this forage [on Little Rockies unallotted area] is used for wildlife, which I doubt it will be, that they will lap over onto the adjoining allotment. Why, then, not use the primary feed zones for those flat zones and less rugged portion for livestock and the more rugged zones next to the mountain and the mountain slopes for wildlife."

Response: Refer to Oral Testimony Response 33.

Comment 35: Dwight Williams

"Evidently this range is for bighorn sheep. In all the years I've been in this area since 1946, I have yet to see a bighorn sheep. If there are sheep there now, as you report, they must stay high on the mountain or in the more rugged areas. So this should leave the more accessible [areas] to livestock grazing."

Response: Although actual census data are not available, sporadic sightings indicate there are some desert bighorn sheep utilizing the Little Rockies unallotted area. The extent of this use, however, is unknown.

Some researchers (Gallizioli, 1977; Wilson, 1971) contend that competition for space between livestock and desert bighorn sheep, especially around water sources, is a major factor limiting bighorn sheep populations in the Southwest Desert. Gallizioli (1977) believes that the mere presence of cattle is a major reason for continuing declines of some desert bighorn sheep populations. Because research suggests that desert bighorn sheep avoid ranges utilized by cattle, no livestock grazing on planned reintroduction areas was recommended under Alternative C. Before livestock grazing would be allowed in the Flint Trail unallotted area (under Alternative E), coordination with Glen Canyon NRA and UWR would be initiated to mitigate any potential impacts.

Comment 36: Dwight Williams

"Why should these AUMs be given to wildlife and do away with the livestock grazing [on Little Rockies unallotted area]? I would recommend that this area be studied and determine the amount of livestock feed available that will not be utilized by wildlife and that this forage be used for livestock."

"After all, I thought the BLM lands were multiple use lands."

Response: Refer to Oral Testimony Response 33.

Comment 37: Dwight Williams

"Then I'd like to quote again from this: 'Simplistic mathematical formula will not be used when making multiple use management decision as to numbers of animals that would be managed and cared for properly on available range.'"

Response: BLM concurs that the art and science of range management are not simple. To properly manage the rangelands in the Henry Mountain Planning Area, BLM consults and coordinates with permittees and other user groups. Please refer to Oral Testimony Response 17.

Comment 38: Dwight Williams

"This allotment [Little Rockies unallotted area] was not shown on a map made by the BLM in 1972 in possession of the ASCS office here in Loa. With the nose of livestock AUMs in this allotment, it will further compound the impact on the adjoining allotment use of AUMs."

Response: Refer to Oral Testimony Response 33.

Comment 39: Dwight Williams

"I ask again why was this allotment made with no livestock grazing? Let's utilize the different types of forage."

Response: Refer to Oral Testimony Response 33.

Comment 40: Meeks Morrell

"Now that [adjudication] was 20 years ago and that's been pretty good and now we've got to go through it again. Every time we do this we have to change our operations and make adjustments and usually they are downward with less income which makes the taxes into our communities less, it hurts our whole economy of the county."

"Now, in '77, we had a drought and we didn't take any livestock to Sandy 1 and we've already gone through a reduction of nearly 50 percent in this



PUBLIC HEARING COMMENTS

allotment and you other fellows have in your allotment also and I would like the BLM to reverse their plans a little bit and see how they can help us with these environmental impact statements by some range improvements and an increase in our numbers or change it back to the things that we already have had taken away from us 20 years ago and let us live."

**Response:** The Henry Mountain Grazing EIS was prepared as part of BLM's planning process. The objective of this EIS is to present current data and propose alternatives for managing soil, water, and vegetation and other resources in the planning area through the use of grazing management; this information will aid the decision-maker in determining the best possible way to manage resources. (The Planning Process section, Chapter 2 in this Final EIS, discusses BLM's planning process in detail.)

Specific rangeland improvements for Sandy 1 Allotment are proposed under Alternatives C, D, and E (see Table 2-4 and Figure 4-1 in this Final EIS). Alternative D considers the economic and environmental impacts of optimizing livestock production.

**Comment 41:** Meeks Morrell

"We'd like to continue our operations. Now, in the Rockies we haven't taken cattle down there for probably 10 to 12 years and it's not because the feed wasn't there but because we couldn't afford to go down there because of the predators. I'd like to see these things controlled so we can continue to run on the range that we do have. We have plenty deer, we have plenty of coyotes, too many, we have plenty of buffalo. Let's keep these things in control and let the livestock people the things that brings the dollars into our community exist."

**Response:** The BLM land management program is designed to conserve and improve rangelands through controlled grazing, adjustment of stocking rates to grazing capacities, and rangeland improvements. Predator control is the responsibility of FWS, in cooperation with BLM and livestock permittees.

**Comment 42:** Meeks Morrell

"Now in 1979, we took a little trip down on the desert and happened to snap some pictures and last evening they said we needed some documented proof of the ranges and I'd like to let you pass that over. That was taken down, up on top of Harold Ekker's mine, looking back towards the north and there was enough feed in that area then for all the livestock in Wayne County to spring there and my observation of Sandy 1 is we've had a steady range improvement since 1977. There's plenty and especially with the Indian ricegrass and other vegetation. Now, we took our livestock off by the 15th of April and we have something to go back to in the fall but we would like to petition the BLM to start looking of ways that they can help us instead of ways that they can cut use and I thank you."

**Response:** Thank you for the information. Data such as pictures taken at a known place with the date recorded can be valuable in assessing changes in vegetation and its response to various impacts such as grazing and precipitation.

BLM photographs on the Sandy 1 Allotment were taken in four different areas in connection with trend studies; these photos cover a period of 16 years. As indicated in Appendix 3, Table 1, BLM's studies show the long-term trend on Sandy 1 to be static at three sites and up on one site. It is con-

ceded that forage production may be high in some years in response to high precipitation; however, production is conversely low in years of low precipitation. Forage should be allocated so that grazing use does not exceed forage production.

Cutting permittees' active preference is, in many aspects, a last resort in bringing grazing use within the rangeland's grazing capacity; however, in many instances, it is the only alternative.

**Comment 43:** Owen Albrecht

"In the Blue Bench Allotment, we have seven trend studies, as near as I can find out. We have within those trend studies there is seven studies. Every one of them are within less than a half mile from the water hole, the troughs, the pipelines, and so on and yet in that very trend study, and also our range is improving according to the BLM data. So, then we have a trend too, as I understand this, and there's lots of things in this book that I don't understand but, as I understand it, our trend or one of the projections in here is to cut our allotment 40 percent to equalize and make the preference come out."

**Response:** Trend study data is presented in Appendix 3, Table 1 in this Final EIS. Of the eight trend plots on Blue Bench Allotment, trend is static on five plots, two are up, and one is down. Thus, the overall estimate of trend for the allotment would be static. In view of this information, plus data from the soil-vegetation inventory and past grazing use levels, it is clear that grazing at active preference would exceed the grazing capacity. Thus, the proposed grazing level under Alternative E, which equates grazing use and capacity (2,753 AUMs), is 40 percent below active preference. Note that this is also 40 percent above average licensed use.

**Comment 44:** Owen Albrecht

"Now, according to this thing, we have set approximately 900 AUMs more on this allotment than is being used. If this be the case, which I don't know that this is accurate, but if this is the case, then why? I'd like to be shown, I would like to be shown why we need the decrease in this allotment for other allotments with the same."

**Response:** Total active preference for all permittees on the Blue Bench Allotment is 4,598 AUMs; this figure is 2,635 AUMs above average licensed use. There are a number of reasons why permittees do not use all of their active preference; however, identifying these reasons is outside the scope of this EIS.

A reduction in active preference is proposed on Blue Bench Allotment and on some of the other allotments in the planning area to bring use within grazing capacities. Ten to 12 years of monitoring data, along with the recent soil-vegetation inventory, support the proposed adjustment in livestock use on this allotment.

**Comment 45:** Owen Albrecht

"...I don't know concerning the rest of these allotments as much I would to comment on them, but with the cuts we've already taken in our allotment in previous years, as has already been stated this night, every one of us has take a substantial loss in our income. We've had to replace AUMs, if we use our preferences in full, which we do. I mean we use our permits in full and this way, in order if they cut us 45 percent or 40 percent or whatever it



might be, this is going to be a substantial loss to us and I feel that, before any adjustment should be made or anything, that the people in the allotment, as permittees, that the BLM people should have a planned schedule and something to shoot for before we make any adjustments."

Response: Your observation is correct. If a permittee is using his full active preference and is reduced below this level, it would probably reduce his income. Also, refer to the Implementation Schedule section of Chapter 2 in this Final EIS.

Comment 46: Terry Albrecht

"These figures in the book on Page 75 says there are big game hunters who are spending \$206.00 a day in our state and \$47.00 a day deer hunting and I can prove that this is not right."

"Therefore, I don't know where these figures came from but I would like to see how you people came up with those figures and also in our allotment..."

Response: The hunter expenditure figures cited are from a study conducted by the Forest Service and were published in a document entitled "A Report on the Value of Wildlife." Please refer to USOA, Forest Service (1977) in the References Cited section of this Final EIS.

Comment 47: Terry Albrecht

"...In the Blue Bench Allotment, on Page 17, it says there are five AUMs of buffalo. I can prove that there's at least 4D buffalo year-round in that allotment which they have not got in this book, yet we're facing a 40-percent decrease in our operation."

Response: UDWR and BLM estimate that bison are using 8 AUMs on crucial summer range in the Blue Bench Allotment. These estimates are based on the best data available to date. If you can provide proof that at least 4D bison use this allotment year-round, please submit this information to the BLM Area Office in Hanksville, Utah. Make sure you specify the number of head, the number of times you see the animals, the date you observe them, and the general area of use. This information would be extremely helpful in the planning and forage allocation processes.

Comment 48: Terry Albrecht

"...and I'd also like to propose that this deadline on December 30th is extended to give us more time to put more input in getting more organized on this EIS..."

Response: The comment period on the Draft EIS was extended from December 30, 1982 to February 28, 1983 as requested by permittees. This gave a total of 121 days for public comments.

Comment 49: Bliss Brinkerhoff

"You also state that you have seven plots on this allotment [Bullfrog] of 92,824 acres. These plots, 6 by 6 as has been stated before, represent 13,000 acres."

Response: The acreage administered by the BLM on Bullfrog Allotment, including BLM and Glen Canyon NRA lands, is 83,401 acres. The size of the trend plot frame is 5'X5'. The number of trend study plots on an allotment is not

necessarily based on the amount of acreage within that allotment. Rather, study plots are placed in areas representative of vegetation types furnishing a substantial amount of forage on an allotment. This enables the resource manager to evaluate the effectiveness of current grazing programs and/or levels. Also, refer to the second paragraph of Oral Testimony 16.

Comment 50: Bliss Brinkerhoff

"As permittees today we only know where one of these plots are. It happens to be within an eighth of a mile of a water hole with five trails going past it in different directions. The soil on this particular plot is about 2 inches deep, is set on thick rock, where it has no chance of improving or really on a downward trend because nothing grows there and so we're concerned as to where the Bureau has the other six plots."

"We feel we should be and for giving you a written recommend we'd like to go with the Bureau and satisfy our ourselves as to how you came up with a downward trend in the Bullfrog Allotment. We, as users, were considering asking for an increase. We felt that that allotment had been improved that much."

Response: See the second paragraph of Oral Testimony Response 16 regarding trend study location and methodology.

Information from the trend studies is summarized in Appendix 3, Table 1 in this Final EIS. On the Bullfrog Allotment, the longtime estimate of trend is up on three plots, down on two, and static on two. This, combined with information from the soil-vegetation inventory and average licensed use, shows that the indicated grazing capacity (3,035 livestock AUMs) is 12 percent below active preference, but 97 percent greater than average licensed use. Thus, actual livestock grazing could be nearly doubled, but grazing at active preference would exceed grazing capacity. Proposed livestock grazing use under Alternative E, the preferred alternative, is 3,035 AUMs, the indicated grazing capacity.

Comment 51: Bliss Brinkerhoff

"So, we appreciate this and we feel that perhaps that we would like to submit a plan whereby maybe with water development and ponds that there will actually be an increase instead of a decrease."

Response: The Draft EIS did propose increases from average licensed use on most allotments and increases from active preference use on at least five allotments (see Table 2-2, Alternative E). Additional increases are dependent on development of watering facilities and rangeland improvements.

Comment 52: Bliss Brinkerhoff

"Today there's nothing but sagebrush that's taller than I am. I'm not very tall but that tall of sagebrush and all the grass is gone and you have no wildlife running on it and to me this is not management. This is a waste and I hope that we will, in the near future, present to you also an outline of what we would like to have in place of the alternatives that you have for the Pennell Allotment which include controlled burns."

Response: Please refer to Oral Testimony Response 29, which discusses BLM consultation with permittees. Oral Testimony Response 25 discusses land treatments, including controlled burns.



Comment 53: Keith Durfey  
"I feel that we need to submit an Alternative F, if you will, and have it reviewed by the BLM."

Response: Please refer to Oral Testimony Response 29.

Comment 54: Keith Durfey  
"Specifically, one comment I'd like to make is on your suitability criteria. I resent grazing 'B' [being] eliminated from areas simply by description, that an area is unsuited because of slope, distance from water, or soil surface factors. Cattle graze where they graze and not where they are told. They don't read these books. Especially in light of information in the EIS manual on Page 131 [of the Draft EIS] which admits some of the inadequacies of the information going into the suitability criteria. One example on distance from water, there are mesas that we use only when there is snow. We've used the feed there, though, and this helps to distribute the cattle and make the impact on the rest of the range lighter."

Response: It is realized that cattle graze on steeper slopes, on poorer range, and on areas further from water than the suitability criteria allow. Suitability criteria are applied, however, because cattle use steep slopes less often than they use more level terrain; also, cattle graze areas 2 miles away from water more often than they graze areas 6 miles from water. If suitability criteria were not applied, areas close to water and/or gently sloping or level areas would be severely overgrazed.

As explained in the memorandum you reference (Appendix 3 in this Final EIS), the problems encountered with the computer lumping suitable with non-suitable areas were corrected. BLM personnel hand-calculated grazing capacities for all animals and edited the resulting suitability changes into the allocation process.

Comment 55: Keith Durfey  
"I feel that, as an alternative, that management should take the major role in Alternative F to increase or maintain--maintain or increase livestock use."

Response: Please refer to Oral Testimony Response 29.

Comment 56: Keith Durfey  
"The sheep, of which I am a permittee on Sandy 1, are slated for an increase according to this EIS Alternative E. Several years ago I had to sell all my sheep due to coyote depredation. This is rather a paradox or contradictory situation. We increase our sheep but we can't use them."

Response: Refer to Oral Testimony Response 41.

Comment 57: Charles Oliphant  
"We feel that it is discriminatory against us because of the problems with the computer analysis of the information that's been gathered to suffer the type of cuts which are mentioned, the 68 percent on Sandy 2. We would lose 1,521 AUMs which would, at \$20.00 an AUM an average, a low average, I might say, cost of the AUMs which we had to purchase just recently, that would be a net loss to us of \$30,420.00."

"Added to that the 62-percent reduction slated for Steele Butte would be an additional \$5,280.00 on those two allotments and we're involved in six allotments. Those two allotments would cost us \$35,700.00, so we're opposed to the alternatives there."

Response: BLM permits are brought and sold among permittees, without any guarantee by BLM. Adjustments in active preference will be made according to forage availability, not on the basis of who holds the permit. It is assumed that a buyer will understand that adjustments in active preference are possible and that this risk will be adjusted for in the purchase price. It has been public knowledge for at least 3 years that BLM has intended to make adjustments in grazing use levels on the Henry Mountains.

Comment 58: Charles Oliphant  
"I might state that the Sandy 2 Allotment, the long-time study there does not support these reductions as stated on your Page 80 in your EIS book, you can't make adjustments on the basis of the inventory only."

Response: As stated in the right hand column of Table 3-3 of this Final EIS, regarding the Sandy 2 Allotment: "Studies support a higher grazing capacity estimate" (than indicated by the soil-vegetation inventory). The Implementation Program, Monitoring Program, and Grazing Administration Practices sections, Chapter 2 of this Final EIS, provide guidelines for determining grazing capacities in situations where monitoring studies and the soil-vegetation inventory do not agree.

Comment 59: Jack King  
"I guess everything has been said about all the allotments except Trachyte. There's only one question I need answered and that is how we come up with 44-percent reduction with no trend plots or any studies on it on the Trachyte Allotment."

Response: On allotments adjoining the Trachyte Allotment, there are 30 trend study plots. The majority of these trend plots have been read on a regular basis for 10 or more years. The trend study plots on the adjoining allotments are located on range sites similar or identical to range sites on the Trachyte Allotment. The trend study data and the soil-vegetation inventory data are mutually supporting on all adjoining allotments. Therefore, there is a sound basis for assuming that the soil-vegetation inventory data accurately reflect grazing capacity on the Trachyte Allotment.

Also, refer to the Monitoring section in Chapter 2 of this Final EIS.

Comment 60: Jack King  
"And then I'd like to know on this Little Rockies Allotment, just how come that come off and why did that come off of my Trachyte Allotment?"  
"They've never had any hearings or anything and that's all I've got to say."

Response: Refer to Oral Testimony Response 33.

Comment 61: Dudley Brian  
"I'm Dudley Brian and I represent the Wayne County Farm Bureau and we feel that the time for written comments should be extended 60 days."



PUBLIC HEARING COMMENTS

Response: Please refer to Oral Testimony Response 48.

Comment 62: Dudley Brian

"We feel like the feelings of the permittees on the Henry Mountains and feel like they did not have enough time to get their written comments and work with the BLM to come up with a workable alternative that they can live with and we'd like to see that the extension of time be given of 60 days for written comments."

Response: Please refer to Oral Testimony Response 48.

Comment 63: Dwight Williams

"We, as a Permittees' Committee of the Henry Mountain Resource Area, request from you, Donald L. Pendleton, District Manager of the Richfield District, an extension of time for the comment period of an additional 60 days to present to you a permittees' alternative. The Permittees' Committee requires time to (1) evaluate trend studies; (2) reassess average licensed use; (3) determine more accurate economic impact. Hoping this can be given, Dwight Williams, Chairman."

Response: Please refer to Oral Testimony Responses 29 and 48.

Comment 64: Richard Pace

"My name is Richard Pace and I am representing the Pace Ranch, Incorporated, and also the SCS. I'd like to go on record, Mr. Chairman, of protesting the custodial "C", no special management on the Cathedral, Hartnet, Sandy 3, and Waterpocket Fold. Now, those four ranges are adjacent to the National Forest, so being close to the Forest, the way I interpret this book, as wanting to leave it as is, the space on the outskirts of the Park, you naturally want to look as good as it does inside the Park or, in fact, you want it to look better. So, you'd better show the Park people where the tree--so, without any development there's no water development, and your range cannot improve and, with the Park having a study right now, and the range not having any development, you can't improve it."

Response: Refer to Oral Testimony Response 1.

Comment 65: Richard Pace

"Also, I'd also like to recommend that it says in the Hartnet Allotment there are nine trend plots but I know of five and four of them are within the Park. There's one trend plot that I'd like to have moved and restudied because of rodents. Now, cattle won't kill plot grass unless they're put on it as a straight diet. I can show you feed grounds where they're fed box brush, they graze the ground in the spring and right now there is box brush that's back up as tall as Bliss and the test plot at the Rock Water Test plot that's got rodent control and we've got evidence of Dr. Jim Bowns of the U.S. [SUSC] that there's rodents undermining the box brush and I'm sure that's one of the test plots that has a downward trend."

Response: Rodents, grasshoppers, or jackrabbits can reduce rangeland condition and impair productivity just as effectively as overgrazing by livestock. In the case of the trend plot to which you refer, rodents may be the cause. If a trend plot is not representative of the strata, it can be moved. However, if a trend study plot is representative, forage production is down,

and trend indicates deterioration in rangeland condition, BLM can only respond by adjusting or modifying the impacts over which it has control, such as grazing.

Comment 66: Richard Pace

"...and I'd also like to go on record as on the adjudicated livestock period of use on the Hartnet, they've got from the 11th to the 1st and from the 5th to the 30th and that's wrong because one permittee has got a permit from the 10th to the 16th and the 15th and the 30th and I'm sure they've worked out a reasonable working."

Response: The livestock period of use on the Hartnet Allotment is from November 1 to May 31. Permittees can use the allotment any time within the adjudicated period of use.

Comment 67: Richard Pace

"...but I want to go on record as opposing all alternatives or whatever they are and recommend that they get with the permittees and work out a workable agreement."

"Also the SCS will delegate their help and they have range plans to help the permittees, if possible, and we'll see if we can get that work with the range studies and trend plots. That is, if the BLM will approve it."

Response: See Oral Testimony Response 29. Other alternatives were not proposed or developed by the Henry Mountain Resource Area Permittees' Committee because their concerns dealt primarily with on-the-ground management. These concerns will be resolved during implementation and development phases of individual AMPs.

Comment 68: Ralph Pace

"I was discriminated against because of no management plan."

"This fall I was told in the BLM Office at Hanksville, 'No money will be spent on your range until you join in a management plan.'"

"Now, I resent these people discriminating against me."

Response: In the past, allotments with management plans have received higher priority for rangeland improvements. The EIS prioritizes allotments for rangeland improvements subject to the availability of funds. All planning area allotments have been grouped into M (Maintain), I (Improve), or C (Custodial) categories (see Table 1-2 in this Final EIS). The planning process and MIC categories are explained in the Planning Process section, Chapter 1 in this Final EIS. Potential rangeland improvements specific to your allotment are listed in Table 2-4; approximate locations are shown in Figure 4-1.

Comment 69: Ralph Pace

"What does it cost the BLM to import the buffalo on our range?"

Response: UDWR transplanted the bison from Yellowstone National Park in 1941. There was no cost to BLM.

Comment 70: Ralph Pace

"And this is the other thing I want to say: My allotment has been decreased [sic. increased] 70 percent."



# PUBLIC HEARING COMMENTS

Response: The Henry Mountain Planning Area grazing management program has attempted to maintain and improve rangeland conditions and implement grazing use levels that would not exceed the rangeland's grazing capacity. The alternatives presented in this EIS would review, update, and revise this ongoing program. Proposals specific to your allotment can be found on Tables 2-2, 2-3, and 2-4 in this Final EIS. Decisions for allotments will be made following consultation with permittees.

Comment 71: George Coombs

"But I think as far as I can tell in this impact study, the BLM has a tendency to pick on those who are not going to give them any flack and I refer to the Hanksville Allotment sheep cuts and the Burr Point. At Burr Point, they have some 2,279 AUMs down to 914 and there hasn't been any sheep there for better than 12 years and it's hard for me to understand why they should be reduced this far because I don't think they're going to get any flack from anybody because this is the place where they can jump and graze that much because there's nobody there that's going to protest it."

Response: Proposed adjustments are based on the indicated grazing capacities, without consideration of which permittees are involved.

Comment 72: George Coombs

"...but I want to go on record as being opposed to all alternatives and I'd also like to recommend an additional 60 days for written comments and that the BLM meet with the Permittee Committee to work out a suitable alternative."

Response: Please refer to Oral Testimony Responses 29 and 48.

Comment 73: Tom Jeffery

"We run in the Cathedral Allotment and we'd like to know if we could, why we couldn't be moved from a Class C, that's Custodial, over to an I, which is where we can have improvements. It seems like it's pretty hard to increase your range or do anything about it if you're in a Class C, Custodial, where you just go along and nothing can be done and the reason that we're Custodial is because we're so close to the Park and there's only about a third, or not even a third, of the range that's in the Park."

Response: Refer to Oral Testimony Response 1.

Comment 74: Tom Jeffery

"...and we'd like to go on record to being opposed to all the alternatives and we will work with this group that was formed last night and see if we can come up with another one."

Response: Please refer to Oral Testimony Response 29.



Comment Letter 1

Response Letter 1

*Greenwich, etch  
Nov. 22, 1982*

*Mr. Donald S. Pendleton  
Bureau of Land Management  
Richfield District Office*

*Dear Sir,*

*In studying the publication on the Henry Mountain Planning Area, I find the Deer Point Allotment is placed in the M category. It is my feeling this allotment should be placed in category A with high priority for water development.*

*This area has had a considerable amount of money already spent on it. How ever it still remains very insecure of adiquet for livestock and wild life.*

*Sincerely Lynn Bagley*

1.1

Please refer to Oral Testimony Response 1.

1.1





# United States Department of the Interior

GEOLOGICAL SURVEY  
RESTON, VA 22092

In Reply Refer To:  
EGS-Mail Stop 423

NOV 23 1982

## Memorandum

To: District Manager, Bureau of Land Management  
Richfield, Utah

From: Assistant Director for Engineering Geology

Subject: Review of draft environmental statement for Henry Mountain  
grazing, Utah

It is stated that the primary water use is by livestock and wildlife; however, other uses listed include mining, irrigation, domestic, and power generation (p. 49). In view of an annual water yield of only 0.14 inch per acre, the magnitude of irrigation under the various alternatives should be indicated. In particular, we note that the preferred alternative would involve increasing forage on 23,950 acres (table 2-5 and p.86). The statement should indicate whether any increase in irrigation would be needed in order to provide improved forage under this alternative and, if so, should address resultant impacts on water resources. Overgrazing is planned under alternative A (table 2-5). Would this overgrazing result in increased surface runoff? If so, the potential for impacts on recharge to subsurface flow and ground-water resources should be assessed.

*J.R. Rollo*  
James F. Devine

2.1

2.2

2.1

All land treatments are designed to establish and maintain forage using natural precipitation; no supplemental irrigation is planned. Therefore, there would be no increase in irrigation in any of the alternatives. Irrigation was mentioned as a water use for information purposes only.

Impacts to water resources are discussed by alternative in Chapter 4, Water Resources section in this Final EIS.

2.2

Table 2-5 provides only a brief summary of major environmental impacts. Chapter 4 discusses impacts to water resources in detail.

Overgrazing on portions of 11 allotments and one unallotted area in Alternative A and 21 allotments and one unallotted area in Alternative B could result in increased runoff, especially in the steeper portions of the planning area (see Water Resources section, Chapter 4 in this Final EIS). This could lower the amount of water available for recharge in the vicinity of the overgrazed area. However, impacts to groundwater would be difficult to quantify because of such variables as precipitation, climate, geology, soils, and vegetation in overgrazed areas. Also, overgrazed areas could be separated by a number of miles and would overlay different aquifers.



Comment Letter 3



United States  
Department of  
Agriculture

Soil  
Conservation  
Service

P. O. Box 11350  
Salt Lake City, UT 84147

November 23, 1982

Donald L. Pendleton, District Manager  
Richfield District Office  
Bureau of Land Management  
150 East 900 South  
Richfield, UT 84701

Dear Mr. Pendleton:

We have reviewed the Henry Mountain Grazing Draft Environmental Impact Statement and have no comments.

GEORGE D. McMILLAN  
State Conservationist

cc:  
Peter Myers, Chief, SCS, Washington, DC  
Charles F. Lemon, Director, NTC, SCS, Portland, OR  
Bob Sennett, SB, SCS, Salt Lake City, UT

Comment Letter 4



United States Department of the Interior  
BUREAU OF RECLAMATION  
UPPER COLORADO REGIONAL OFFICE  
P.O. BOX 11568  
SALT LAKE CITY, UTAH 84147

IN REPLY  
REFER TO

UC-150

120.

DEC 6 1982

Memorandum

To: District Manager, Bureau of Land Management, Richfield  
District Office, 150 East 900 South, Richfield, Utah 84701

From: Regional Director  
Bureau of Reclamation

Acting

Subject: Review of Draft Environmental Impact Statement - Henry Mountain  
Grazing (DES 82-66)

We have reviewed the above draft environmental impact statement and do not have any substantive comments to offer.



Comment Letter 5

Response Letter 5

Dear B.L.M.  
I have run cattle on the Blue Bench Allotment for 16 years and I feel this range is better now than it was then. I don't think a 40% reduction is needed any. I think this is to high and with better distribution of cattle it is good the way it is.

James D. Wood

5.1

BLM has eight trend study plots on Blue Bench Allotment; six of these have been established for 13 or more years. Two of the trend plots indicate a general improvement, five indicate little or no change, and one indicates a decline on an area that is now in poor condition. The photographs of the study plots show general improvement on six of the eight sites. (See Appendix 3 in this Final EIS for trend study information.)

Overall, Blue Bench Allotment has shown some improvement. However, average licensed use during the last 5 years has been about 43 percent of active preference; with this amount of use, the allotment has remained in unsatisfactory (fair or poor) condition. Soil-vegetation inventory data indicate that 2,753 AUMs would be available under Alternative E (MFP Step 2 Planning Recommendation), which is 790 AUMs above average licensed use. BLM trend study data fully support this figure. Alternatives C, D, and E identify potential reconstruction of four existing reservoirs and construction of two new reservoirs to improve cattle distribution on Blue Bench Allotment. (See Table 2-4 and Figure 4-1 of this Final EIS for a list of potential rangeland improvements and approximate locations.)



## Comment Letter 6

5 December 1982

Donald L. Pendleton  
Bureau of Land Management  
Richfield District Office  
150 East 900 North  
Richfield, Utah 84701

Dear Mr. Pendleton:

I have recently finished reading the "Draft Henry Mountain Grazing Environmental Impact Statement", and I wish to commend you and your staff for a document that, overall, is well-done, professional, and obviously the result of a lot of hard work. I did find certain errors and short-comings of the EIS, which I feel obliged to point out to you:

6.1 Page 26--Under the Preferred Alternative (E), and others as well, beaver would be introduced to the head of Bullfrog Creek. I question the wisdom of doing this; aspen trees and other food sources in the head of Bullfrog Creek are scattered and few, and the introduction of beaver here could result in the destruction of these trees, the starvation of the beaver, or both. I support the introduction of beaver into the other areas proposed in the EIS (Mt. Ellen Creek and Bull Creek), as aspen is plentiful in these areas and the benefits to watershed would be considerable.

6.2 Page 23--(and elsewhere in the EIS)--The EIS allocates forage to bison, but never states the basis for this allocation. There are two important considerations here: 1) Bison will use forage in areas seldom visited by cattle. Was this taken into consideration? If so, how? What areas were considered useable by bison? How were they defined? 2) Bison distribution cannot be controlled, and furthermore bison distribution is highly erratic and unpredictable. Was this considered when allotting forage to bison? Is there any "margin of error" in case bison decide not to use forage allocated to them, but instead move to an area where all forage is allocated to other species? Because this information is not provided, a full evaluation of the EIS is impossible.

6.4 Page 85--Under Alternative D, the EIS proposes to do rangeland improvements on 1300 acres in the Dry Lakes Allotment, for use by big game. This area is at the periphery of the bison range, and receives only occasional use. Rangeland improvement in this area--depending on where it occurred--could greatly increase bison use, and promote part of the herd wintering to the north of Mt. Ellen, in areas where no forage is allocated for them. The EIS should address this potential impact.

6.5 Page 85--Several alternatives include clearing land of native vegetation, followed by seeding of introduced forage species; this process is variously referred to as "rangeland improvement", "land treatment", and "restoration" (restoration to what?--this word implies that pinyon-juniper and sagebrush is an unnatural condition). Whatever it is called, the net result is that thousands of acres of native, undisturbed vegetation will be totally destroyed. The failure of

## Comment Letter 6

2

6.5 (cont.)

the EIS to state this fact, and state it clearly, is a serious omission of a very important impact.

6.6 Page 86--The EIS states that "...bison do not concentrate in riparian zones to the extent that cattle do", but provides no reference. Statements without reference should be made only when they are common knowledge--and the above statement is far from it. In fact, it is a matter of considerable dispute. There is a reference for the above statement (Van Vuren 1979); BIM paid for it, so why not use it?

6.7 Page 94--The EIS states "There has been limited documentation of bison diets in habitats where grass is a minor part of the vegetation composition....". The EIS then proceeds to describe diet results that were not done in such areas, but completely omits the one study that was done in a community where grass was a minor component. The omitted information is available in Van Vuren (1979); I suggest you reference it.

6.8 Page 94--The reference "McInnis, 1977", both on page 94 and in the References Cited section, is incorrect. The author's name is "McInnis". Also, in the reference on page 154, McInnis did not study "huge" herbivores; he studied "large" herbivores.

6.9 Page 94--The EIS states "These diets showed a composition (corrected for underestimation of forbs) of 82 percent grass, 16 percent forbs, and 2 percent browse", but provides no reference for the information. These data were obtained from a paper by Van Vuren and Bray (1983) which has been accepted for publication by Journal of Range Management. Use of data without reference constitutes plagiarism, which is unethical, unprofessional, and unacceptable. No doubt the omission of a reference for the above information was an oversight, and I am confident that it will be corrected in the final version of the EIS.

Aside from the above, I found the Draft EIS to be a competent, thorough document. You and your staff have made the most of a limited data base and chosen a Preferred Alternative which I consider to be the best balance of several competing resources. Thank you for your efforts.

Sincerely,  
*Dirk Van Vuren*

Dirk Van Vuren  
Department of Systematics and Ecology  
University of Kansas  
Lawrence, KS 66045



## Response Letter 6

- 6.1 During the planning process, beaver habitat was considered in several locations throughout the planning area. Habitat along Mt. Ellen Creek and Bull Creek was found suitable. However, habitat in the head of Bullfrog Creek area needs further evaluation, and this site should not have been included as one of the proposed beaver introduction areas. This error has been corrected in this Final EIS.
- 6.2 Bison grazing use levels and crucial ranges were determined by a committee consisting of UOWR and BLM personnel. Areas defined as unsuitable for bison use were: (1) slopes greater than 75 percent; (2) current production of useable perennial forage less than 25 lbs./acre (32 acres/AUM); (3) distance from a reliable water source greater than 5 miles; and (4) SSF greater than 60 percent. Areas considered unsuitable for cattle but suitable for bison included areas containing slopes greater than 50 but less than 75 percent and areas greater than 4 but less than 5 miles from water.
- 6.3 It is agreed that bison use patterns could change from current distribution. However, because of the variations involved, it would be impractical to analyze such a change for every allotment containing crucial range. Therefore, bison were allocated forage according to their current distribution on crucial ranges. It is important to note that the crucial ranges identified are extensive and, therefore, minor shifts in bison distribution should not result in any significant overutilization of the rangeland resource.
- 6.4 UOWR has already identified the Dry Lakes unallotted area as crucial bison summer and yearlong range for eight and twelve animals, respectively. Inventory data show that this area does not have sufficient forage to meet the needs of these animals. Range-land improvements (land treatments) on this area would create 160 additional AUMs (see Table 2-4 in this Final EIS). These AUMs would provide enough forage to meet current bison needs, plus provide an additional 38 AUMs, and would prevent overutilization of the range-land resource.
- Also, please refer to Letter Response 6.3.
- 6.5 The Glossary defines the terms "land treatment" and "rangeland improvement." Generally, a land treatment changes established vegetation to improve forage resources. A rangeland improvement includes any action (i.e., water developments, fences, trails, land treatments) to improve forage, soil, or water conditions; control patterns of use; or enhance habitat for livestock or wildlife. Land treatments (chaining, burning, spraying, etc.) are methods of modifying vegetation and, in this instance, treatments would be used to increase forage production for big game and livestock.
- In this EIS, land treatments were designed for selected sites to reduce the dominance of sagebrush, pinyon, and juniper. Chaining, burning, spraying, etc., do not, however, clear entire areas nor do they totally eradicate native vegetation.
- The vegetation in the Henry Mountain Planning Area, in general, and in the sites identified for potential land treatment, in particular, cannot be referred to as "undisturbed." The closed stands

## Response Letter 6

- 6.5 (cont.) of pinyon-juniper and sagebrush are largely the result of years of overgrazing and fire protection. If it were not for the existing 6,747 acres of reseeded rangeland, the forage available for big game and livestock would be substantially less. (See Table 3-3 in this Final EIS for acres of reseeded rangeland by allotment.) Additionally, without the existing land treatments, the maintenance of the bison herd on its current habitat would be impossible because of limited forage. Without further land treatments, any increase in grazing use would be impossible because of limited forage production and competition with cattle.
- 6.6 The third paragraph under Vegetation, Riparian Zones section, Chapter 4 in this Final EIS, has been changed to include the supporting reference of Van Vuren, 1979b. See References Cited section in this Final EIS for complete bibliography information.
- 6.7 The Final EIS has been corrected to reflect this reference in Chapter 4, Animal Life section.
- 6.8 The text reference has been changed to reflect McInnis in this Final EIS. The References Cited section has also been changed as you suggested.
- 6.9 Failure to reference this information was an oversight. The reference has been corrected in the Animal Life section, Chapter 4 in this Final EIS.



## Comment Letter 7

*Richfield*



Utah Farm Bureau Federation

December 3, 1982

Roland Robison  
State Director  
Bureau of Land Management  
Utah State Office  
136 East South Temple  
Salt Lake City, Utah 84111

Dear Roland:

This letter is to formally request an extension of the comment and review period for the Henry Mountain Environmental Impact Statement for an additional 60 days beyond the scheduled December 31, 1982, closing date.

As you know, a joint meeting was recently held in Richfield between BLM officials, representatives of the Utah Division of Wildlife Resources and Farm Bureau to discuss the buffalo herd problem. We believe this was a positive meeting, establishing a potential for solving this historical issue.

In addition, permittees have formed a study group to develop some specific proposals to the BLM on the Henry Mountain plan. We need additional time to work on this.

We appreciate the apparent attitude of cooperation in the Richfield district of the BLM. If this spirit of cooperation can be maintained, it is our belief that good progress can be made in resolving the rather wide differences that now exist regarding the number of animal unit months of forage available in that resource area.

Again, we request an extension of the review and comment period on the Henry Mountain EIS until March 1, 1983.

Sincerely,

*C. Booth Wallentine*

C. Booth Wallentine  
Executive Vice President

cc: Senator Orrin Hatch  
Senator Jake Garn  
Congressman James Hansen

HOME OFFICE 5300 SOUTH 360 WEST



SALT LAKE CITY, UTAH 84107 (801) 261-2424

## Response Letter 7

7.1 Please refer to Oral Testimony Response 48.



# Natural Resources Defense Council, Inc.

25 KEARNY STREET  
SAN FRANCISCO, CALIFORNIA 94108  
415 421-0561

Washington Office  
1735 I STREET, N.W.  
SUITE 600  
WASHINGTON, D.C. 20006  
202 235-8210

New York Office  
122 EAST 42ND STREET  
NEW YORK, N.Y. 10168  
212 949-0049

December 7, 1982

Donald L. Pendleton,  
District Manager  
Richfield District Office  
Bureau of Land Management  
150 East 900 South  
Richfield, Utah 84701

Dear Manager Pendleton:

We have received a copy of the Henry Mountain Grazing draft environmental impact statement (EIS) and submit the following comments on behalf of the Natural Resources Defense Council, Inc. (NRDC). Unfortunately, time constraints prevent us from analyzing the document in detail. Nonetheless, our brief review reveals that this EIS fails to comply with at least one critical requirement of the National Environmental Policy Act of 1969 (NEPA), because it does not consider a "no grazing" alternative.

8.1

The Bureau of Land Management (BLM) is required by the final judgment in *NRDC v. Morton*, 388 F.Supp. 829 (D.D.C. 1974), to prepare EISs which analyze existing and proposed livestock grazing activities and which satisfy NEPA in all respects. *Id.* at 841-42. Such EISs must include a "no grazing" alternative for two reasons. First, "no grazing" is the "no action" alternative required by the Council on Environmental Quality's regulations, 40 C.F.R. § 1502.14(d), because the issuance of federal grazing permits constitutes the "action" which produces environmental impacts, thereby triggering the application of NEPA. *NRDC v. Morton*, 388 F. Supp. at 834. Second, analyzing the effects of eliminating grazing generates an essential baseline against which to determine and compare the environmental impacts of all other grazing alternatives. Only in this way will the public and the ultimate decision-makers be apprised of the specific impacts of various levels of grazing.

8.2

8.3

The BLM has previously recognized its clear obligation to include the "no grazing" alternative in grazing EISs. See, e.g., Instruction Memorandum No. 79-445, "Draft Guidelines for Preparing Interim Strategy Environmental Impact Statements (EIS's)," May 10, 1979, at 1-22. Indeed, up until this year the option was included in every grazing EIS prepared by the Bureau. Thus, the

Donald L. Pendleton  
December 7, 1982  
Page Two

8.3  
(cont.)

failure to include a "no grazing" alternative in this EIS violates established NEPA doctrine as well as BLM's consistent interpretation of NEPA, as set forth in policy and practice.

In conclusion, we urge you to include the "no grazing" alternative in the final EIS. Please contact us if you have any questions.

Sincerely,

*Johanna H. Wald* 10/82  
Johanna H. Wald

*David B. Edelson*  
David B. Edelson

JHW/DBE:klw



## Response Letter 8

8.1

The NEPA (1969), as amended, does not require consideration of a "No Grazing" Alternative. Section 102(e) of NEPA requires that "appropriate alternatives" recommending or proposing courses of action be studied, developed, and described in EISs. CEQ NEPA regulations (paragraphs 1502.14[a] and 1508.25[b]) direct that the range of alternatives discussed includes a rigorous exploration and objective evaluation of all reasonable alternatives, together with a brief discussion of other alternatives eliminated from detailed study and the reasons for eliminating them.

As indicated in the Alternatives Discussed section of the Summary in this Final EIS, the elimination of livestock grazing was dismissed as an alternative because it did not meet the test of a reasonable alternative.

FLPMA (1976) directs in Sections 102 (a)(7) and (8) that public lands be managed on the basis of multiple use and sustained yield and in a manner "...that will provide food and habitat for fish and wildlife and domestic animals..." In Section 103 (1), it states that: "The term principal or major uses include, and are limited to, domestic livestock grazing, fish and wildlife development and utilization..." Thus, under existing legislative guidance and implementing regulations, elimination of grazing would be inappropriate, unreasonable, and could not be considered by the decision-maker.

NRDC has apparently recognized that "No Grazing" is an unrealistic alternative in comments on past grazing EISs. Letters to BLM (NRDC, 1977a) regarding general comments on EISs and specific comments on the Challis, Idaho and San Luis, Colorado, EISs addressed this subject. On page 11 of the San Luis Grazing Final EIS (NRDC, 1977a) it states: "Of course no one really expects the BLM to totally eliminate grazing entirely in the San Luis Resource Area or any other of the broad areas to be covered in future EISs."

Similar statements were contained in NRDC comments on the Preliminary Draft and Final Tonopah Grazing EISs. The comments on the Tonopah Final EIS included the following statement: "Indeed, no one could seriously expect the Bureau to eliminate livestock grazing entirely in the Tonopah Resource Area..." (NRDC, 1977b).

8.2

"No grazing" is not the "No Action" alternative. The following quote is taken from CEQ information published in the Federal Register (CEQ, 1981):

"There are two distinct interpretations of no action that must be considered, depending on the nature of the proposal being evaluated. The first situation might involve an action such as updating a land management plan where ongoing programs initiated under existing legislation and regulations will continue, even as new plans are developed. In these cases no action is no change from current management direction or level of management intensity... Therefore, the no action alternative may be thought of in terms of continuing with the present course of action until that action is changed."

## Response Letter 8

8.2

(cont.)

This EIS is an update/revision of the management program. "No Grazing" is not the present course of action and, therefore, does not equate to the "No Action" Alternative.

The resource inventories and the URA (see The Planning Process section, Chapter 1 in this Final EIS) provide the basis for analyzing impacts of each alternative. Chapter 3 contains the pertinent information from the resource inventories and URA. This information describes current rangeland conditions, land uses, and potential of the rangeland resources; these data provide the basis for evaluating the beneficial and adverse impacts of each alternative. Analysis of the effects of eliminating grazing is not the basis for determination or comparison of impacts; such analysis would be useless since "No Grazing" is not an alternative that the decision-maker can consider. (It should be noted, however, that, under Alternative C, elimination of livestock grazing was proposed and analyzed for some allotments.)

Additionally, elimination of livestock grazing was not suggested during the scoping process, in public meetings, or in contacts with other affected or interested individuals or agencies.

8.3

The instruction memorandum you reference was superseded by a memorandum dated May 23, 1980 from the BLM Director to the Utah State Director (USDI, BLM, 1980). Therein the Utah State Director was delegated authority to approve Preparation Plans and file Draft and Final Grazing EISs. On the issue of the "No Grazing" Alternative, it was the State Director's interpretation that this alternative did not constitute a reasonable or viable alternative. For that reason, he directed that the "No Grazing" Alternative would not be automatically analyzed in an EIS. However, this alternative should be considered and, if determined inappropriate, the reasons should be briefly described, as was done in this EIS.



## Comment Letter 9



November 30, 1982

Donald L. Pendleton  
District Manager  
Bureau of Land Management  
Richfield District Office  
150 East 900 North  
Richfield, Utah 84701

RE: Draft Environmental Impact Statement, Henry Mountain Grazing  
UT821026-010

Dear Mr. Pendleton:

The Utah Preservation Office has received for consideration a copy of the draft EIS for the Henry Mountain Grazing area. After review of the document, our office has the following comments that may be of use to the Bureau of Land Management.

1. As stated in the draft impact statement, a memorandum of understanding as agreed on will be utilized to insure that cultural resources are protected when land actions are specified at a later date. This memorandum of understanding has been signed by the Bureau of Land Management, and the Utah Preservation Office.
2. After review of the archeological and historical material provided, this office believes that the statements are correct in detailing what is known of historic and archeological resources.
3. One area where our office feels there is a deficiency is that the Bull Creek Archeological District is listed on the National Register of Historic Places and that more information should have been provided in the document about the nature of the district and the possible impacts to it and the surrounding area.

9.1

State History Board: Milton C. Abrams, Chairman • Theodore Luke • Ted J. Warner • Elizabeth Montague • Thomas G. Alexander  
Dale G. Dixon • Wayne K. Harris • Helen J. Papadoulas • David S. Morison • Elizabeth Griffin • William D. Owens

## Comment Letter 9

Donald L. Pendleton  
Bureau of Land Management  
November 30, 1982  
Page 2

The above is provided on request as information or assistance. We make no regulatory requirement, since that responsibility rests with the federal agency official. However, if you have questions or need additional assistance, please let us know. Contact Jim Dykman at 533-7039.

Sincerely,

Melvin T. Smith  
Director and  
State Historic Preservation Officer

JLD:jr:F663/5200c

cc: RDCC - UT821026-010



Response Letter 9

9.1

The information on the Bull Creek Archaeological District is general in this final EIS. However, the brief discussion provided is commensurate with the level of impact analysis possible at this time. Table 2-4 in this final EIS lists potential rangeland improvements for Alternatives C, D, and E (none are proposed for Alternatives A and B). These improvements are listed by type and quantity only. Exact locations for potential rangeland improvements have yet to be determined and, for that reason, the analysis of impacts to cultural resources was limited to the general statements appearing in Resources Not Analyzed section, Chapter 4 of this final EIS.

The existence of the Bull Creek Archaeological District in the Hanksville Allotment will be one of the determining factors in locating rangeland improvements in that allotment. According to the cultural resources Memorandum of Understanding (Appendix 2 of this final EIS), if it appears that impacts may occur, BLM will consult with the State Historic Preservation Officer to determine the most satisfactory means of mitigating damage, as required by 36 CFR 800.

Comment Letter 10

Donald L. Pendleton, District Manager  
Richfield District Office

Dear Mr. Pendleton

We as a Permittee Committee for the Henry Mt. Resource Area

request from you, Donald L. Pendleton, District Manager of the Richfield District  
An extension of time for the Comment Period of a additional 60 days.

To Present To you a Permittee Alternative.

The Permittee Committee requires time To.

- 1- Evaluate trend studies
- 2- Re assess average licensed use.
- 3- Determine more accurate economic impacts.

Hoping this can be given.

Dwight Williams  
Chairman  
Hanks, Utah

10.1



## Response Letter 10

10.1 Please refer to Oral Testimony Response 48.

## Comment Letter 11

BOARD OF TRUSTEES  
DAVID R. BELDING  
JACK C. McELWEE  
GORDON W. HARRIS  
BELTON P. MOURAS  
GERTRUDE BRONN, Honorary  
In Memoriam  
LOUISEC HARRISON  
VELMAB JOHNSTON, "Wild Horse Annie"

WILD HORSE ORGANIZED ASSISTANCE  
INC.  
A Foundation for the Welfare of  
Wild Free-Roaming Horses and Burros

Kathryn Cushman  
Box 26  
Canterbury, New Hampshire 03224  
December 6, 1982

Henry Mountain DGEIS

P O Box 555  
Reno, Nevada 89504  
Telephone 323 5908  
Area Code '02

# WHOA!

Donald L. Pendleton, District Manager  
Richfield District Office, BLM  
150 East 900 South  
Richfield, Utah 84701

Dear Mr. Pendleton:

Thank you for the opportunity to comment on the Draft Henry Mountain Grazing **Environmental Impact Statement**.

11.1

The preferred alternative, Alternative E, the Planning recommendation, allows cattle a 16,000 AUM increase and sheep an 8,000 AUM increase. The burro population, small though it is, is not even allowed enough AUMs for the 19 burros. The statement is made that the herd may expand yet no provision is made for that increase. The burros should be allowed 400 AUMs. This is not an unreasonable request in light of the fact live-stock is granted large increases. Burros are to be treated comparably with other resource values. Nowhere is it stated that burros and horses are to be held to 1971 levels; that seems to be an excuse for mass reductions in some states.

11.2

Any range improvements that may assist the burro herd, particularly during the winter months, should be made accessible to them.

Again, thank you for the opportunity to comment.

Sincerely,

*Kathryn Cushman*  
Kathryn Cushman  
WHOA

cc : Dawn Lappin, Director WHOA





## Response Letter 11

11.1

The burro herd management area is located in two planning areas: the larger portion is in Emery County, Moab District, and the balance is in Wayne County, Richfield District. The smaller portion, located in the Richfield District, is confined mostly to Millard and Horseshoe Canyons. Because Moab District also allocates AUMs for burros, the Richfield District allocated AUMs for 18 or 19 burros, enough AUMs for the present population.

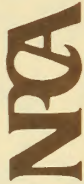
The control on the herd size has not been due to low forage use levels, but to severe winters, predators, etc. Allocations are made on the basis of need and, at this time, 100 AUMs appear to be adequate for the present population. Future needs will be identified during development of the herd management plan in conjunction with the San Rafael Resource Area, Moab District, UDMR, and NPS.

11.2

Any potential rangeland improvements such as water developments will be available for use by burros and wildlife, as well as by livestock. Seven new reservoirs and two reconstructed reservoirs are potentially identified for the Robber's Roost Allotment. However, not all of these are within the present burro range.

One rangeland improvement potentially identified for the northern portion of the Horseshoe Canyon Allotment is the construction of a trail, which could make more of the lower range available for winter use by burros.

## Comment Letter 12



December 9, 1982

Donald L. Pendleton  
District Manager  
Richfield District Office  
Bureau of Land Management  
150 East 900 South  
Richfield, Utah 84701

Dear Mr. Pendleton:

The National Parks and Conservation Association appreciates the opportunity to submit the following comments on the Draft Henry Mountain Grazing Environmental Impact Statement.

We are seriously concerned about several major inadequacies in the EIS, especially the BLM's failure to assess the impacts to the environment of Capitol Reef National Park from the grazing management alternatives outlined in the EIS.

12.1

The BLM's statement on page 2 that "No alternatives would affect preference or average license use on Capitol Reef National Park" is untrue. There are five allotments in the Henry Mountain Planning Area which include both BLM and Capitol Reef National Park lands within their boundaries. It is an obvious fact that increasing or decreasing the number of cows on the BLM side of the allotment is going to affect the number of cows utilizing the NPS side of the allotment since the boundaries are not fenced. Hence, the information present in Figure 1, Forage Use by Alternative, is also misleading. The chart shows forage use in Capitol Reef National Park as remaining constant for each unit, while the forage use on BLM lands changes under various AUM levels. In reality, changing the number of cows on the BLM portion of the Sandy I, Sandy III, Hartnut, Cathedral, and Waterpocket allotments will affect the number of cows and hence the forage use on NPS lands.

Likewise, Tables 2-2 and 2-3 which show comparison of forage use by allotment are also deceptive. The level of forage use for each allotment is again shown to change under each alternative on BLM lands, but to remain static on NPS lands. As NPCA has noted, unless the boundary between BLM and NPS lands is fenced, this simply isn't the case. And the EIS makes no mention of fencing.

12.2

Furthermore, the BLM notes under "Unresolved Issues" on page 5 that "National Park lands would have to be inventoried before a final decision was made on livestock forage use." This is precisely NPCA's point--that a full inventory and evaluation of range conditions on the grazed lands within Capitol Reef National Park needs to be completed before

National Parks & Conservation Association, 1701 Eighteenth Street, N.W., Washington, DC 20009  
telephone (202) 265-2717



Comment Letter 12

-2-

12.2  
(cont.)

management decisions are made regarding the grazing program for these areas.

This is not what is happening however. Instead, the BLM is making management recommendations for the Henry Mountain Planning Area grazing program which will directly effect forage use in Capitol Reef National Park without an inventory of existing forage conditions in the National Park, and without an evaluation of how these management recommendations will effect forage condition in the park in the future.

12.3

NPCA strongly objects to the publication of misleading information in the Henry Mountain Grazing EIS and is deeply disturbed that the BLM is proceeding with major management decisions based on an incomplete and faulty data base.

12.4

Cattle grazing in Capitol Reef National Park is an extremely controversial issue. There is a high level of debate over the existing impact of cattle grazing on the park's vegetation, soils, and watershed lands and on the park visitor's experience. Yet the issues listed under "Scoping and Areas of Controversy" (page 1) do not include consideration of the impacts to Capitol Reef National Park from grazing. NPCA realizes that during the scoping period the BLM was probably still acting under the assumption that livestock grazing was being phased out of Capitol Reef. However, if scoping were held today, the impacts of grazing on the resources of the National Park would probably exceed the forage use by bison, deer, wild burros and livestock as the "most controversial issue." The EIS is simply inadequate without a full consideration of the park impact issues.

12.5

It also appears to NPCA that the "reductions" in livestock AUMs which would result in Alternatives A, C and E are more "paper cuts" than real reductions.

Figure 1 shows that actual livestock average use in the Henry Mountain Planning Area is 26,688 AUMs. While Alternatives C and E reduce active preference levels for livestock use, the newly proposed levels are still above the existing use levels.

This is of concern to NPCA because according to the BLM's own information, the Henry Mountain Planning Area appears to be currently overstocked.

On page 7, the BLM notes that "The soil-vegetation inventory conducted during 1978-1980 and monitoring studies conducted for more than ten years indicate that grazing use on some allotments may exceed forage production."

12.6

On page 5, the BLM admits that under Alternative A and B--which means under the existing actual and allowed use--"overgrazing could violate non-impairment criteria in two and five WSAs, respectively."

-3-

12.6  
(cont.)

NPCA would like to point out that the BLM's non-impairment criteria requires only that an area "generally appear to have been affected primarily by the forces of nature with the imprint of man's work substantially unnoticeable."

If the BLM is correct in stating that "overgrazing" under Alternatives A and B could result in a violation of the non-impairment criteria, this means that lands within the Henry Mountain Planning Area, under existing actual and allowed use could be overgrazed to the extent that they no longer appear "natural." NPCA can only conclude that this indicates severe overuse.

12.7

Furthermore, the evaluation of range conditions within Capitol Reef National Park completed by Dr. Stanley L. Welsh this last summer indicated that the park lands were overstocked by fifty to three hundred percent. NPCA realizes that this study was preliminary and not comprehensive. However, if nothing else, the Welsh report indicates the need for a more complete inventory of range conditions in the Park before management decisions effecting these lands are made. The study also suggests that the Park is being seriously overgrazed.

12.8

In light of this information, NPCA feels that none of the alternatives outlined in the EIS are acceptable. As already noted, no alternative allows for a real reduction of AUMs on BLM or NPS lands. In fact, all of the Alternatives except A allow for an increase in actual use.

12.9

Furthermore, the EIS reports significant impacts to vegetation, soils, visual or wilderness resources under each alternative. In the preferred Alternative E, the BLM seems to be relying on proposed range improvements and land treatments to adequately "improve" forage condition to an acceptable level. What if these programs are not funded by Congress? What if they are not successful in improving range condition? Will the BLM then alter the allowable number of AUMs?

12.10

The EIS also notes that the construction of rangeland improvements could violate BLM IMP non-impairment criteria, and that these improvements would have to be delayed until Congress decides which WSAs to include in the National Wilderness Preservation System. NPCA suggests that the WSA status of these areas reflects their publicly recognized high natural, recreational and wilderness values. We feel that certain kinds of land treatments, such as chaining or burning, are inappropriate for these areas.

12.11

NPCA questions why the elimination of livestock grazing was dismissed as an alternative because it "did not meet the test of a reasonable alternative," (page 13) when the elimination of buffalo, antelope and bighorn is accepted as a reasonable alternative.



## Comment Letter 12

-4-

12.11  
(cont.)

The bison are a special resource and a sensitive species. Public meetings during the BLM's coal suitability analysis for lands within the Henry Mountain coal field reflected strong public support for protecting bison habitat. The bison deserve priority, or at least equal consideration, in the establishment of alternatives.

12.12

NPCA also finds the treatment of threatened, endangered and sensitive plant species in the EIS inadequate. Even though the BLM admits in the EIS that the harsh environment of the Henry Mountain Planning Area favors the evolution of rare and endangered plant species, they are relying solely on the official US DOI "Preliminary List of Threatened, Endangered or Sensitive Plants and Their Known Habitat" to evaluate the potential impacts of the Henry Mountain Planning Area grazing program on threatened, endangered and sensitive plant species. As the BLM admits in the EIS, "This table does not reflect an area-wide on-the-ground survey, and is therefore, probably incomplete at this time."

12.13

Furthermore, the BLM fails to say how they will mitigate the impact of livestock grazing on threatened, endangered and sensitive plant species, even though at least one endangered plant, *Sclerocactus wrightiae*, is listed as occurring in the area.

12.14

On-the-ground surveys for threatened, endangered and sensitive plant species need to be completed on Capitol Reef National Park lands, if not also BLM lands, before grazing management decisions affecting these lands are finalized.

12.15

NPCA also questions why the Dry Bench allotment is not included in the EIS. It is NPCA's understanding that this allotment has been in non-use since 1965, primarily due to a lack of water sources in the allotment. The updating and revision of the Henry Mountain Grazing Program would seem to be an appropriate time to officially designate this area as a non-use area.

12.16

In summary, NPCA maintains that grazing management decisions which affect lands and resources within Capitol Reef National Park should not be made until the environmental consequences of such decisions are fully evaluated. This means that until a comprehensive inventory of forage conditions in the park is completed and evaluated, and until an on-the-ground survey of threatened, endangered or sensitive plants is completed and evaluated, the BLM should not finalize the range management recommendations affecting the Sandy I, III, Hartnut, Cathedral and Waterpocket allotments. We also encourage the BLM to develop a set of alternatives which better address the apparent problem of overstocking in certain portions of the Planning Area, and which provide adequate forage for the bison.

Sincerely,

TERRELL

Terri Martin

Utah Representative  
National Parks and Conservation Association

BOX 15 MOAB UT 84302

## Response Letter 12

12.1

During the inventory and scoping period for the Draft Henry Mountain Grazing EIS, BLM was guided by legislation (Ninety-Second Congress, 1971) that would phase out livestock grazing within Capitol Reef National Park. Therefore, BLM did not conduct nor was BLM funded to conduct, the soil-vegetation inventory within Capitol Reef National Park. As a result, there is not equivalent forage production and condition data on BLM and NPS lands, and no recommendations were made for adjusting active preference on allotments or portions of allotments within Capitol Reef National Park. However, BLM does retain grazing administration responsibilities on these allotments and will adjust grazing use inside the Park in consultation with the NPS should monitoring or the National Academy of Sciences study indicate the need (see Appendix 1).

The Unresolved Issues section of the Summary in this Final EIS has been changed to reflect this issue. The fencing of Capitol Reef National Park to control livestock movement is an issue that must be resolved between NPS and the livestock owner. Under an existing agreement (USDI, NPS, BLM, and Bureau of Reclamation, 1970), NPS has the responsibility to program and install facilities to protect park recreational uses.

12.2 Refer to Letter Response 12.1.

12.3 Refer to Letter Response 12.1.

12.4

BLM agrees that cattle grazing within Capitol Reef National Park is presently a controversial issue. However, since grazing was being phased out when the scoping of issues was initiated (May 1978) and when scoping was updated and revised during the preplanning analysis session (May 1980), it was not identified as an issue at that time. This Final EIS has been updated to reflect this issue. Please see the Unresolved Issues section of the Summary and Appendix 1 in this Final EIS for more information.

12.5

The AUMs proposed for livestock and big game under Alternatives C, D, and E would not allow grazing use to exceed grazing capacities on any allotment. Grazing use levels proposed under these alternatives are based on 10-12 years of rangeland condition and trend studies and monitoring of livestock use, supported by a recent soil-vegetation inventory (see Table 3-3 of this Final EIS). In determining grazing use levels, consideration was also given to rangeland suitability and dietary needs of livestock and big game. These data indicate that the rangeland produces sufficient forage to support grazing use above average licensed use on most allotments. On the six overgrazed allotments where grazing use currently exceeds grazing capacity, reductions are proposed. (See Table 2-2 in this Final EIS.)

12.6

BLM's IMP and Guidelines for Lands Under Wilderness Review (1979) are somewhat more explicit regarding non-impairment criteria than you indicate.

The Wilderness section, Chapter 3 in this Final EIS, states: "Continued grazing use on the lands authorized as of October 21,



## Response Letter 12

12.6  
(cont)

1976, will be allowed as long as the impacts of grazing do not increase." As indicated in the Wilderness section, Chapter 4 in this Final EIS, vegetation overutilization could increase the impacts of grazing. The analysis of impacts to vegetation indicates that significant vegetation overutilization would occur on six allotments under Alternative A and on 17 allotments under Alternative B. This would affect two and six WSAs and proposed wilderness in Glen Canyon NRA and Capitol Reef National Park under Alternatives A and B, respectively. The analysis concluded that such overutilization would, in time, cause a decline in rangeland condition and increase the impacts of grazing use, thus violating the non-impairment criteria. This, however, does not mean that the areas do not presently appear natural or that there would be sudden loss or dramatic impact on "naturalness" in those areas. It is BLM's policy and the intent of this EIS to manage grazing use at a level that will not impair wilderness values.

12.7 Refer to Letter Response 12.1.

12.8 Refer to Letter Response 12.1.

12.9 Under all alternatives, grazing use would be monitored, and livestock grazing and big game use would be limited to the rangeland's grazing capacity. Vegetation overutilization over portions of the planning area would result in grazing use reductions and/or changes in period of use. Potential rangeland improvements and land treatments are designed to ensure more uniform use of the rangeland, increase grazing capacities, and lessen reductions in use by livestock and big game.

Proper grazing use levels under Alternatives C, D, and E are based on existing grazing capacity. Should Congress fail to fund needed rangeland improvement projects, if other sources of funding should fail to materialize, or if projects should fail in any way, grazing use would be maintained within grazing capacity.

Please refer to the Wilderness section of Chapter 3 in this Final EIS for a discussion of allowable actions, including land treatments, in WSAs. Also, see Letter Response 12.6.

12.10 Your opinion will be considered in the decision-making process.

12.11 Please refer to Letter Responses 8.1, 8.2, and 8.3 for an explanation of why the elimination of livestock grazing was not considered as an alternative.

Livestock grazing was eliminated in Alternative C in areas where there were conflicts with big game needs on crucial ranges. Likewise, big game were eliminated where conflicts occurred with livestock grazing in Alternative D. Because antelope and bighorn sheep did not previously have allocations for forage adjudicated specifically for them, they were not given reservations for forage in Alternative B.

12.12 The preliminary list of threatened, endangered or sensitive plants and their known habitats is not an official USDI list, but a list assembled by the BLM, Richfield District staff. As stated in

## Response Letter 12

12.12  
(cont.)

the title, Table 3-2 is a preliminary list. This table is only used to show the plants that occur or are likely to occur in the Henry Mountain Resource Area and that have been listed or categorized in the December 15, 1980 Federal Register. This list will be updated as new information becomes available. The source data include herbarium searches by Welsh (1979) and the vascular flora of the Henry Mountains by Neese (1981) as well as BLM inventory data.

12.13

Item 5 of the Standard Design, Construction, and Operation Features section (Chapter 2 in this Final EIS) has been changed to reflect that a literature search and an on-the-ground survey for threatened, endangered, and sensitive species will be conducted prior to taking any actions that could affect these species. Mitigation measures will be implemented where necessary.

If a survey revealed that there could be an effect on these species, formal consultation with the FWS would be initiated, as required by law. This consultation would ensure that actions were properly mitigated so minimal or no effect would occur to these species.

In the *Sclerocactus wrightiae* Technical Review Draft Recovery plan (Mutz et al., 1982), grazing and resultant trampling are mentioned as impacts in some habitat areas. However, grazing is not addressed as an issue in the recovery objectives.

12.14

Reviewing literature and collection data and conducting surveys for threatened, endangered, and sensitive plant species are ongoing programs on BLM-administered lands. However, BLM currently has no mandate or funding for conducting on-the-ground surveys on lands not administered by BLM.

12.15

The Dry Bench unallotted area is entirely within Capitol Reef National Park and, therefore, was not analyzed in this EIS. Also, see Letter Response 12.1 and the Unresolved Issues section in the Summary of this Final EIS.

12.16

Your opinions will be considered during the decision-making process. Also, see Letter Response 12.1.



association of governments



P. O. BOX "D"  
ST. GEORGE, UTAH 84770  
PHONE (801) 673-3548

AREAWIDE CLEARINGHOUSE A-96 REVIEW

Type of Action: Pre-Application \_\_\_\_\_ Notification of Intent \_\_\_\_\_ Application \_\_\_\_\_  
Notice of Federal Action \_\_\_\_\_ ENVIRONMENTAL EVALUATION \_\_\_\_\_

Receipt Date 10-29-82 SAI Number UT 821026-010 ACH Number \_\_\_\_\_

Applicant Identification, Address  
Department of the Interior  
Bureau of Land Management  
Richfield District  
150 East 900 North  
Richfield, UT 84701

Applicant's Project  
Title: HENRY MOUNTAIN GRAZING DRAFT ENVIRONMENTAL IMPACT STATEMENT

Description: The Bureau of Land Management proposes to update and revise the grazing management program within the Henry Mountain Planning Area. The program would provide vegetation to livestock, big game, and wild burros. The alternatives included in this environmental impact statement recommend levels of livestock grazing, identify needed rangeland improvements, and outline a schedule (cont. on other side)

AREAWIDE CLEARINGHOUSE COMMENTS ON PROPOSAL FOR FEDERAL AID

Staff review completed (date) 12-6-82

Screening Committee review completed (date) 12-8-82

Executive Board Review Completed (date) \_\_\_\_\_

Referred to originator for additional information (date) \_\_\_\_\_

☐ Recommend Approval \_\_\_\_\_ Comments (see reverse side of page) \_\_\_\_\_

☐ Conditionally approved as follows (see reverse side of page) \_\_\_\_\_

☒ Recommend Disapproval \_\_\_\_\_ Comments (see reverse side of page) X

☒ The project described above ( ) does ( X ) not conform with the policy or planning of the multijurisdictional area it directly impacts. Additional information ( ) is ( X ) not needed

☐ We also serve notice that all requirements of the Project Notification and Review System for this multijurisdictional area have been met. Therefore, attach this letter to your application and forward to the federal funding agency.

☐ If this project will be a renewal or continuation grant, please submit your application next year to this area-wide clearinghouse for re-review 30 days prior to submission to federal funding agency.

If any Clearinghouse Comments go unresolved, Federal law requires the Applicant to attach a copy of all negative comments to the project application and forward them both to the Federal Funding Agency(ies).

☐ We would anticipate reviewing final project application 30 days prior to submission for funding.

12-9-82

Copy of review sent to applicant.

BEAVER GARFIELD IRON KANE WASHINGTON

AREAWIDE CLEARINGHOUSE  
COMMENTS

13.1

The BLM administers grazing on 1.9 million acres of lands in the Henry Mountains Resource Area. A substantial number of the grazing allotments are in Garfield County while the remainder are in Wayne County. The preferred BLM alternative reflects an average cut of 45.3 percent of the proposed alternative grazing use from the current active preference. While the preferred alternative increases grazing capacity about 46.5 percent over active use, it is still well below the active preference. Ranchers should be allowed to achieve their active preference. The improvements proposed by BLM will fall short of those required to achieve the active preference. None of the other alternatives provides an adequate alternative that satisfies rancher concerns. Ranchers should be allowed to participate more directly in the range decisions on each allotment. Together, the BLM and individual ranchers can selectively adjust the grazing use and make range improvements concurrently to achieve desired results rather than forcing livestock operators to take large cuts now and face the uncertainty of future range improvements promised by the BLM. A system that permits individual permittees and the BLM to make seasonal on-site range decisions is preferable to making long-term cuts. Range consultation on each grazing allotment could result in adjustments and concurrent range improvements based upon mutual data review and range monitoring. This should be an integral part of each allotment management plan (AMP). Too often, reductions in range carrying capacities have not been followed by actions to make range improvements. This has resulted in adverse economic impacts to livestock operators.

13.2

The document identifies rangeland improvements and the subsequent livestock and big game AUMs to be realized from the improvements. Costs associated with these improvements and cost/benefit ratios should be analyzed in-depth. Equally as important, no schedule is established for making the improvements based upon current or expected revenues. It is inappropriate to address alternatives without the corresponding costs and a schedule for implementation. (Vaughn McDonald)

Description continued:

of implementation. Measures to protect or enhance environmental resources have been incorporated into the program. Alternatives considered in addition to (A) Proposed Action: No Change--Permit Livestock/Big Game Grazing at Current Average Levels of Use, include: (B) No Action--Maintain Existing Forage Allocation; (C) Management for Optimum Big Game Production; (D) Management for Optimum Livestock Production; and (E) Preferred Alternative--Management Framework Plan Step 2 Planning Recommendation. A concise description of the affected environment and an analysis of the environmental consequences resulting from each alternative are included in the document.



13.1

Please refer to Oral Testimony Response 29 regarding consultation with permittees. The permittees have participated in the planning and EIS process and will be involved in developing cooperative AMPs and decisions affecting these allotments.

Note that potential rangeland improvements are listed on Table 2-4. Where a rangeland improvement would result in increased forage production, a portion of this increase would be restored to permittees, according to the priorities listed under the alternative selected (see Items 1 and 2 under Description of Alternative E, Chapter 2 in this Final EIS). Conservation of soil, watershed, and vegetation is the purpose of bringing livestock use within grazing capacity. However, the loss of AUMs to bring grazing use to proper grazing capacity may not always be restored by rangeland improvements. Also, the lack of funding often limits the amount of rangeland improvements BLM can construct.

13.2

Cost estimates for rangeland improvements are provided in Table 2-4 in this Final EIS. These improvements will be scheduled as outlined in the Implementation Program and Implementation Scheduling sections in Chapter 2 in this Final EIS.

The BLM Rangeland Improvement Policy requires cost/benefit analysis of all projects using appropriated funds before they are implemented; therefore, all improvements will be evaluated closely for cost effectiveness before implementation.



4613 South 4000 West  
P.O. Box 20222  
Salt Lake City, Utah 84120  
Phone 968-3548

December 14, 1982

Mr. Donald L. Pendleton, District Manager  
Richfield District Office  
150 East 900 South  
Richfield, Utah 84701

Dear Mr. Pendleton,

Thank you for mailing the latest information on the Henry Mountain Grazing Environmental Impact Statement. We appreciate the opportunity to comment at this stage. We would like to comment on the five alternatives that you have listed.

14.1

Alternatives A and B are, in our opinion, not worthy of consideration as they would adversely affect all the wildlife in the area. We feel that it is impossible for us to consider these alternatives when representing the animal-related conditions in the area.

Alternative C, could be worthwhile, but only is current conditions in this area are proper. It would possibly call for some population control among the big game in this area so livestock could use non-competitive forage.

Alternative D, would eliminate the Bison in the area, as well as Deer and Bighorn. In cutting back on all wildlife habitat, you may threaten other species of wildlife not evaluated in this grazing statement.

14.2

Alternative E, the preferred alternative, would eliminate the wild roaming Bison herd which would be unacceptable. The elimination of any of the wildlife in the area would be impossible to consider. With Alternative C, and proper management of existing lands, both livestock and wildlife could be supported in



Comment Letter 14

December 14, 1982  
Page 2

the Henry Mountain area.

We would like to receive notice of any further hearings or meetings related to this area and would like to review the final decision when it is available.

Sincerely,

*Helen D. Robison*  
Helen D. Robison  
Senior Investigator

Response Letter 14

14.1

NEPA regulations and/or BLM policy require that BLM analyze a No Change (Alternative A) and a No Action (Alternative B) alternative in grazing EISs. Alternative A would permit livestock/big game grazing at current average use levels whereas Alternative B would maintain existing forage allocation (active preference) levels.

14.2

Under Alternative E, the Henry Mountain bison herd would be provided sufficient forage on crucial ranges to support a post-hunt herd size of 200 yearling and adult animals. This herd size has been agreed to by UOWR and BLM.



## Comment Letter 15

## Response Letter 15

December 27, 1982

Dear Mr. Pendleton:

As a permittee in the Henry Mountains EPS study, Steele Butte Allotment.

I do not think this EPS study does justice to the trend the range is in. My opinion is the range is not deteriorating.

Some allotments are classed for improvement while others are not. All allotments can and should be improved. After all that is what a portion of our grazing fees are to be used for.

Where does this money go? The grazers haven't been getting the improvements.

The Steele Butte Allotment has twelve trend plots over 83,443 acres on one plot for every 6,953.5 acres. Of the twelve trend plots I know where three are located. One is on a gypsum hill, one on a gravel ridge and one next to a main cattle trail.

I do not think an accurate study can be made from these plots. As a permittee I would like to go with the BLM when these plots are checked and would like to help place them.

If grazing is going to be controlled, I think the UNDR should control the bison also. For example that they maintain the herd at its present size and not be allowed to increase.

Where does the UNDR get their Aum's for buffalo? Are they issued as they need them? What is the long range goal for bison, bighorn, antelope, Etc.?

All alternatives in the EPS would result in grazing cuts, except for one on two instances. I do not favor any of the alternatives, and think the permittees should have a chance to propose an alternative of their own for consideration.

Sincerely,  
William C. Taylor  
William C. Taylor

- 15.1 Please refer to Oral Testimony Responses 1 and 2.
- 15.2 Please refer to the second paragraph of Oral Testimony Response 16.
- 15.3 The basis for any forage allocation for bison is herd size. UDWR and BLM have agreed to manage for a bison post-hunt herd size of 200 yearlings and adults. UDWR's long-range goals for big game animals on the Henry Mountains are as follows: bison, 550 animals; mule deer, 3,900 animals; desert bighorn sheep, 1,700 animals; and pronghorn antelope, 850 animals.  
Also, please refer to Oral Testimony Response 9.
- 15.4 The Henry Mountain Resource Area Permittees' Committee did not propose a new alternative (see Oral Testimony Response 29).



# Comment Letter 16



STATE OF UTAH  
OFFICE OF THE STATE PLANNING COORDINATOR

MARTHE F. DYNER  
STATE PLANNING COORDINATOR

December 27, 1982

Mr. Dee R. Ritchie  
EIS Team Leader  
Richfield District Office  
Bureau of Land Management  
150 East 900 North  
Richfield, Utah 84701

Dear Mr. Ritchie:

Subject: DDI/Bureau of Land Management: Henry Mountain Draft EIS -  
Richfield District  
State Application Identifier #UT821D26-D10

The Resource Development Coordinating Committee of the Utah State Clearinghouse has reviewed this proposed action and State History will provide assistance and information if needed.

Thank you for the opportunity to review and comment on this document. Please address any questions regarding this correspondence to Carolyn Wright at 801-533-4971.

Sincerely,  
*Marthe F. Dynner*

Marthe F. Dynner  
State Planning Coordinator

attachments  
/cw

116 STATE CAPITOL BLDG. • SALT LAKE CITY, UTAH 84114 • (801) 533-5245

# Comment Letter 16



STATE OF UTAH  
SCOTT MATHESON  
GOVERNOR

Division of  
State History  
(UTAH STATE HISTORICAL SOCIETY)

NEVINT SMITH DIRECTOR  
300 S. GOWDIE  
SALT LAKE CITY, UTAH 84101  
TELEPHONE 801-533-3153

November 30, 1982

Donald L. Pendleton  
District Manager  
Bureau of Land Management  
Richfield District Office  
150 East 900 North  
Richfield, Utah 84701

RE: Draft Environmental Impact Statement, Henry Mountain Grazing  
UT821026-010

Dear Mr. Pendleton:

The Utah Preservation Office has received for consideration a copy of the draft EIS for the Henry Mountain Grazing area. After review of the document, our office has the following comments that may be of use to the Bureau of Land Management.

1. As stated in the draft impact statement, a memorandum of understanding as agreed on will be utilized to insure that cultural resources are protected when land actions are specified at a later date. This memorandum of understanding has been signed by the Bureau of Land Management, and the Utah Preservation Office.
2. After review of the archeological and historical material provided, this office believes that the statements are correct in detailing what is known of historic and archeological resources.
3. One area where our office feels there is a deficiency is that the Bull Creek Archeological District is listed on the National Register of Historic Places and that more information should have been provided in the document about the nature of the district and the possible impacts to it and the surrounding area.

16.1

State History Board: Miles C. Adams, Chairman • Theron H. Lyle • Ted J. Warner • Elizabeth Montague • Thomas G. Alexander  
Celia G. Dayton • Wayne A. Hinton • Helen Z. Papadimos • David S. Worsan • Erleann Griffin • William D. Owens



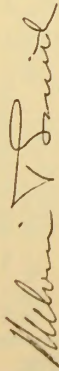
## Comment Letter 16

## Response Letter 16

Donald L. Pendleton  
Bureau of Land Management  
November 30, 1982  
Page 2

The above is provided on request as information or assistance. We make no regulatory requirement, since that responsibility rests with the federal agency official. However, if you have questions or need additional assistance, please let us know. Contact Jim Dykman at 533-7039.

Sincerely,



Melvin T. Smith  
Director and  
State Historic Preservation Officer

JLD:jr:F663/5200c

cc: RDCC - UT821026-010

16.1 Refer to Letter Response 9.1.





# Wildlife Management Institute

709 Wire Building, 1000 Vermont Ave., N.W., Washington, D.C. 20005 • 202 / 347-1774

DANIEL A. POOHE  
President  
L. R. JAHN  
Vice President  
L. L. WILLIAMSON  
Secretary  
JACK S. PARKER  
Board Chairman

District Manager  
Richfield District  
Bureau of Land Management  
150 East 900 North  
Richfield, Utah 84701

Dear Sir:

The Wildlife Management Institute is pleased to comment on DRAFT HENRY MOUNTAIN GRAZING ENVIRONMENTAL IMPACT STATEMENT, Utah.

The EIS is not satisfactory for wildlife. It is confusing and sometimes misleading.

17.1 What is BLM proposing? "Alternative A: Proposed action: No Change - Permit livestock/big game grazing at current average levels of use." On Page 15 this title is explained as "proposed action is for analysis purposes in this EIS and is not the BLM preferred alternative."

17.2 "Alternative E: Preferred alternative - MFP Step 2 Planning Recommendation." This alternative is based on recommendations of an ID Team and is a compromise. Apparently it is preferred by the team but not the decision makers. We are unable to tell.

17.3 Thus we have 5 alternatives, none a true proposed action, leaving the District Manager free to assemble bits and pieces from any or all alternatives in a new and different decision document.

17.4 Explanations of AIM for livestock under the various alternatives are sometimes misleading. A clearer explanation of active preference and 5-year average use is needed. It appears that four of the five alternatives result in sometimes substantial livestock reductions. That is not so. The active preference is reduced, but actual average livestock use is increased as follows:

Alternative A	same
Alternative B	+111 percent
Alternative C	+ 49 percent
Alternative D	+124 percent
Alternative E	+ 90 percent

DEDICATED TO WILDLIFE SINCE 1911

December 27, 1982

-2-

17.5 No state wildlife population goals are given, and we found only one minor reference to them on page 119, 3rd paragraph. The state agency's participation in this planning effort should be documented.

17.6 More data on what can be done to increase the limited wildlife productivity is needed and should include site-specific recommendations.

17.7 The harshness of the Henry Mountain environment, a hundred years of grazing, much of it abusive overgrazing, should be discussed as the major causative factors of present conditions.

17.8 Instead of listing the decline of ranch values when AIM are reduced, discussion of the burden to the taxpayer for maintaining grazing on the unit should be highlighted. The unit produces an average of 26,631 AUM. At \$1.88 per AUM grazing fee this returns \$50,066, of which the Federal Treasury realizes less than 40 percent. This is much less than the cost of keeping one OS 9 employee in the field. The total area budget must be well above that.

17.9 No estimates are given of the cost of proposed range improvements. However, with more than 19,000 acres to be treated, 119 reservoirs, 31 miles of pipeline, etc., there would be an additional subsidy of many thousands of dollars per permittee, all for a maximum of 2,835 more livestock AUM to be created.

17.10 It is our understanding that the Henry Mountain Bison herd is the only free-roaming bison herd in the nation that is regularly hunted. It should be recognized as an asset to the district, state and nation and should receive much higher management priority than assigned in any alternative.

17.11 A list of preparers of this EIS is needed.

Some specific comments follow:

17.12 Page 28, 10 "When possible." These qualifying words will preclude wildlife water.

17.13 Page 42, Range Potential, 3rd paragraph. This discussion of range potential relates only to livestock. What are the effects of "moderate continuous season long grazing" on wildlife forage and riparian systems?

17.14 Page 49, Mule deer. What is the present population? What are state goals?

17.15 Discuss the free-roaming bison and give a history of the present population.

17.16 Page 58. Completely missing is any data on game birds or the many nongame birds and mammals.



December 27, 1982

- 17.17** Page 76. Small and medium ranches total 71 percent of the 56 permittees. Emphasize that most of these operators do not live on the unit and must have outside jobs to earn a living. Much credence is given to the "ranching life style" without any real justification that it even exists today.
- 17.18** Page 80. Vegetation. Monitoring is fine, but BLM already has 10 years of data. That should be enough to make decisions favoring the land rather than the permittee.
- 17.19** Page 84, from Table 4-2. The land treatments will create 2,995 AUM. We compute this to be .13 AUM per acre, or a requirement of 8 acres for 1 animal month grazing.
- 17.20** Page 80, 5th paragraph. No alternative is satisfactory because none will significantly improve the riparian habitat.
- 17.21** Page 88-89. What was the Utah Division of Wildlife Resources' part in the deer dietary analysis and forage allocations presented here? As written this section indicates some unilateral BLM decisions of deer populations, which are a state function.
- 17.22** Page 94, 3rd paragraph. Maximum wildlife increase proposed is 793 mule deer, for Alternative C. This is not much for the size of the area involved. What are the state's goals?
- 17.23** Page 112, Table 4-16, Column labeled "existing use." This should show clearly that the 56,285 AUM are active preference and that only 26,631 AUM have been used for the last five years!
- 17.24** Page 119. What are the Utah Division of Wildlife Resources' long-term management goals?

These remarks have been coordinated with William B. Morse, the Institute's Western Representative.

Sincerely,

*Daniel A. Poole*

Daniel A. Poole  
President

DAP:1bb

- 17.1** Please refer to Appendix 5 to answer your questions concerning the definitions of "proposed action" and "preferred action." Generally, the proposed action is a continuation of the existing situation. The preferred action alternative was generated by BLM's planning system and is a multiple-use approach to rangeland management.
- 17.2** As indicated in the discussion on BLM's planning process (Chapter 1 in this Final EIS), Alternative E, the preferred alternative, is the interdisciplinary team's recommendation to the managers. After publication of this Final EIS and consideration of public comments, the District and Area Managers will decide on objectives, grazing use levels, rangeland improvements, etc. The decisions may be one or a combination of elements from the alternatives analyzed. Those decisions will subsequently be published in the Record of Decision/Rangeland Program Summary in the fall of 1983.
- 17.3** The alternatives presented are possible to implement, although each alternative would result in different advantages and disadvantages to users and managers. Alternative E is the BLM multiple-use planning proposal.  
You are correct in your assumption that the District Manager is free to use parts from any alternative in development of a grazing management decision. However, any decision he selects must be based on data described and analyzed in the EIS. It should be remembered that the EIS is written to propose different management plans and analyze their impacts on the environment; the EIS is not a decision document.
- 17.4** Tables 2-2 and 3-13 show active preference and average licensed use for each allotment. The terms active preference and average licensed use are defined in the Glossary; also, average licensed use is described in Alternative A, Chapter 2 in this Final EIS.
- 17.5** See the second paragraph of Letter Response 15.3 for UDMR's long-range goals for big game animals.  
Table 1-3 summarizes UDMR's participation in the Henry Mountain planning process. UDMR's major input involved providing information concerning the seasonal distribution of big game animals by allotment on crucial/substantial value ranges. This information was used as the basis for forage use levels in each alternative and was referenced as such (see UDMR references in the References Cited section in this Final EIS).
- 17.6** It is beyond the scope of this EIS to provide a site-specific analysis of how each potential rangeland improvement project would increase forage for big game and livestock. Following the Rangeland Program Summary, HMPs will be developed. Information regarding site-specific rangeland improvement projects can be obtained from the MFP 2 documents located at the BLM offices in Richfield and Hanksville.



## Response Letter 17

- 17.7** A brief history of grazing in the Henry Mountains is presented in the Vegetation section, Chapter 3 in this Final EIS. As you indicated, past unregulated grazing is a major factor in the present condition and productivity of the rangeland.
- 17.8** BLM is responsible for many programs on the public lands, all of which are funded by "the taxpayer" and many of which return no money to the Treasury. Proper rangeland management requires a variety of specialists regardless of the program or its cost effectiveness.
- 17.9** Please refer to Letter Response 13.2.  
BLM's Rangeland Improvement Policy specifies that rangeland improvements be evaluated for cost effectiveness and ranked proportionately according to the benefits they provide. Also, it should be remembered that rangeland improvements benefit other rangeland resources besides livestock (e.g., watershed, soils, water quality, big game habitat, etc.).
- 17.10** BLM acknowledges the importance of the bison herd in the Henry Mountain Planning Area.
- 17.11** Alternative C analyzes optimum bison numbers on their current use areas. This optimum number was developed jointly by UDWR and BLM.
- 17.12** The phrase "when possible" refers to the availability of water rather than BLM's willingness to provide it. Examples of when water would not be available from rangeland improvement projects include: (1) summer periods when springs dry up; and (2) during the winter when pipelines would have to be shut off to prevent freezing.
- 17.13** The sentence you refer to states: "Moderate, continuous season-long grazing generally favors the maintenance of a productive rangeland and livestock production." In most cases, any grazing system that favors or enhances native rangeland will benefit native wildlife. Exceptions do arise when competition between livestock and big game occurs on crucial seasonal range. The areas where such competition occurs have been identified; this situation is analyzed in the Animal Life section of this Final EIS.  
A note of clarification: "Moderate continuous season-long grazing" means that livestock graze the same area or allotment continuously at a moderate level of stocking and utilization during the specified period of use every year. It does not mean continuous yearlong grazing.
- 17.14** The estimated current seasonal distribution of mule deer on crucial ranges is shown by allotment on Table 3-7. UDWR estimates that the current population of deer on these ranges is approximately 15-20 percent of UDWR's long-term management goal. (UDWR's long-term management goal on crucial summer range is approximately 2,400 animals.)

## Response Letter 17

- 17.15** It is beyond the scope of this EIS to discuss the history of wildlife use on the Henry Mountains. The Animal Life section found in Chapter 3, Affected Environment, provides the most up-to-date information on the seasonal distribution of bison on their crucial ranges by allotment. Additional information regarding the past history and current ecology of the herd can be obtained from the Henry Mountain URA located at the BLM Richfield District Office. In addition, refer to Oral Testimony Responses 7 and 8.
- 17.16** An impact analysis for game birds, non-game birds, and mammals was omitted from the EIS because neither the scoping nor the planning processes identified these topics as significant issues for the Henry Mountain Planning Area.
- 17.17** The Attitudes and Lifestyles section, Chapter 3 in this Final EIS, recognizes that most permittees "do not live on the unit." This analysis, however, concludes that "many livestock operations on the planning area have been traditionalized over several generations" and that "working in outdoor employment and directly relating with the region's natural resources are important lifestyle aspects." The "ranching lifestyle" is, therefore, apparent in the local and regional self-perception. The economic analysis in the Socioeconomics section, Chapters 3 and 4 in the Draft and Final EISs, acknowledges the necessity of supplemental income for livestock permittees; however, this does not diminish permittees' lifestyle value in maintaining ranching traditions.
- 17.18** Please refer to Oral Testimony Response 28.
- 17.19** Your calculations are correct.
- 17.20** BLM Manual Section 6740 establishes policy to implement a management system to protect, maintain, and enhance all wetland-riparian areas administered by BLM. Riparian areas which presently or potentially support broad-leaf vegetation in arid and semi-arid ecosystems are of special management concern.  
As discussed in Vegetation, Riparian Zones section, Chapter 3 in this Final EIS, 46 of the 113 streams in the planning area have been surveyed. Therefore, monitoring programs would be implemented and, if it were determined that the riparian habitat were not being maintained or enhanced, additional fencing and/or a limited grazing system would be implemented through a resource activity plan. Also, as indicated in Item 12 of the Standard Design, Construction and Operating Features section (Chapter 2 in this Final EIS), during development of AMPs specific riparian areas will be identified for fencing to protect and improve resource values. These actions will be taken regardless of which alternative or combination of alternatives is selected by management.
- 17.21** BLM is responsible for providing adequate forage to meet the dietary requirements of wildlife on BLM lands. UDWR provided information concerning the seasonal distribution of big game animals on crucial/substantial value ranges by allotment. This information was



17.21 used as the basis for big game forage use levels in each alternative (cont) and was referenced as such (see UDWL references in the References Cited section in this Final EIS).

17.22 Wildlife populations are generally a function of habitat quality and quantity rather than just quantity. Because inventory data show that crucial summer deer range is poor quality habitat, the grazing capacity of this range is disproportionate to the area's size.

Under Alternative C, an additional 771 AUMs of nutritionally suitable/useable forage would become available to mule deer. Based on a conversion factor of 5.8 deer/AUM, this represents an increase of approximately 793 animals. Under this alternative, approximately 50 percent of UDWL's long-term management goals on crucial summer ranges would be met. Also, see Letter Response 17.14.

17.23 Thank you for your comment. Table 4-16 has been revised: Alternative A shows average licensed use (existing use).

17.24 Please see the second paragraph of Letter Response 15.3.

December 28, 1982

Mr. Donald Pendleton  
Manager, Richfield District, BLM  
P.O. Box 768  
Richfield, Utah 84701

Dear Mr. Pendleton,

I am submitting the following comments on the Draft Henry Mountain Grazing Environmental Impact Statement in regard to its discussion of Cultural Resources.

18.1

The statement, "Intensive cultural resource inventories prior to any ground disturbing actions could identify previously unknown sites and areas and increase knowledge of cultural resources" (p. 5), implies that cultural resource preservation is a low priority and that "range improvements" will take precedence over preservation of archaeological sites. If archaeological sites are found during "intensive cultural resource inventories", the "range improvements" should be terminated if the archaeological sites are significant.

18.2

RESOURCES NOT A MAJORITY (p. 79): This is a totally inadequate discussion of what the BLM's plans are concerning the preservation of cultural resources, again implying that Grazing has top priority and that archaeological sites will be sacrificed in order to increase grazing.

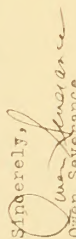
18.3

APPENDIX 1, JOU between the BLM and the Utah State Historic Preservation Officer: Section 11, B.3. This section should be rewritten to read: "A professional archaeologist will be required to be present when ground-disturbing operations are underway." Untrained personnel cannot determine when they are encountering and destroying archaeological sites. If no archaeologist is present during "ground-disturbing activities", archaeological sites will be destroyed without anyone knowing they even existed- a convenient way for the BLM to avoid its responsibilities to preserve cultural resources. The wording in this JOU is another example of the disregard for cultural resources by the BLM in its efforts to increase grazing.



18.4

Nowhere in this Grazing DEIS does it state that archaeological and other cultural resources will take priority over grazing in any location and will be protected by fencing or other means so that these sites will not be destroyed by cattle. The BLM's negative approach in this DEIS toward cultural resources should be changed so that grazing does not take precedence over everything else. BLM land is supposed to be managed for multiple use- not just for the benefit of ranchers.

Sincerely,  
  
 Owen Severance  
 P.O. Box 1015  
 Monticello, Utah 84535

18.1

Nothing is implied or assumed in the statement to which you refer. The implementing regulations of the National Historic Preservation Act of 1966, as amended (36 CFR 800), require inventories to identify properties that are listed on or are eligible for listing on the National Register of Historic Places prior to taking actions potentially harmful to cultural resources. When significant sites are found, steps are then taken to modify or alter the undertaking to avoid, mitigate, or minimize any adverse effects. One of the benefits of this inventory data is the increased knowledge of an area that is gained.

18.2

The discussion on Page 79 of the Draft EIS is not meant to present an impact analysis to cultural resources, nor is it possible to complete an analysis at this stage of a grazing management program. Rangeland improvements, the source of potential impacts to cultural resources, are not yet planned for specific locations. For example, Table 2-4 in this Final EIS indicates that Bullfrog Allotment is scheduled for 2,000 acres of land treatments, two springs, one new reservoir, 12 miles of pipeline, and six troughs under Alternatives C, O, and E. However, it is not yet known just exactly where these improvements would be and, until exact locations were determined, it would not be possible to determine precisely what the impacts would be, what sites would be involved, or what mitigation could be applied.

BLM's plans concerning the preservation of cultural resources are outlined in a Memorandum of Understanding between BLM and the Utah State Historic Preservation Officer (see Appendix 2).

18.3

When a site is important enough to warrant in-place preservation, the necessary steps are taken to ensure that a proposed project is modified or altered so that potential adverse effects from that project are avoided, mitigated, or minimized. If a mitigation plan is done properly, there is no need for the archaeologist to be present during project implementation, nor does BLM feel it is reasonable to make such a blanket stipulation. BLM and the Utah State Historic Preservation Officer have agreed that, if correctly implemented, the measures proposed in the Memorandum of Understanding will protect cultural resources.

18.4

In response to this comment, Section 106 from the National Historic Preservation Act of 1966 is cited below:

"The head of any Federal agency having direct or indirect jurisdiction over a proposed Federal or federally assisted undertaking in any State and the head of any Federal department or independent agency having authority to license any undertaking shall, prior to the approval of the expenditure of any Federal funds on the undertaking or prior to the issuance of any license, as the case may be, take into account the effect of the undertaking on any district, site, building, structure, or object that is included in the National Register. The head of any such Federal agency shall afford the Advisory Council on Historic Preservation established under title II of this Act a reasonable opportunity to comment with regard to such undertaking."



18.4  
(cont.)

Additionally, Section 800.4(a) of 36 CFR 800, Protection of Historic and Cultural Properties, reads as follows:

"It is the responsibility of each Federal agency to identify or cause to be identified any National Register or eligible property that is located within the area of the undertaking's potential environmental impact and that may be affected by the undertaking."

The identification of historic and cultural properties (archaeological surveys) has to take place before any project can proceed. The cultural resource program is covered by law and is an integral part of BLM's multiple-use management program.

Stanley Wood  
Loman, Utah  
December 1, 1972

Mr. Don Penhale  
Bureau of Land Management  
150 East, 900 North  
Richfield, Utah

Dear Sir,

After reading the draft environmental impact statement, I am very flattered, but realistically it scares the hell out of me.

My brother, Jess, and I run cattle on the Hanksville allotment. We have run cattle on three different allotments the past five years. They are the Blue Ranch, the Rockies, and now the Hanksville. We feel like we have found the range we were looking for.

There is presently 4538 AUM's, which is 440 head of cattle for seven months, and also 1462 AUM's of sheep. The sheep permit has not been used for several years, and there has only been 2000 AUM's of the cattle permit used for the past several years. So naturally the allotment looks very good. If this allotment was fully stocked, with 440 head of cattle for 7 months, and 914 head of sheep for 8 months, I doubt very much if there would be any extra feed. Compare this with the proposed 70 percent increase, which would put 1552 head of sheep for 8 months and an unbelievably 1102 head of cattle for 7 months. This is way out of line as far as I'm concerned and I would strongly protest any increase.

There is also some talk of the Wayne County Water Conservancy District making a land exchange out on Half Way Ranch. If this was to happen, it would take out approximately 6000 acres to grazing.

The last few years have been good ones. I think we need to allow for the dryer years, and manage for them as well. I don't think an increase could be in our best interest for this reason.

We have a very limited water supply, and only with some additional developments, would be able to take care of the existing AUM's.

In conclusion, I would like to suggest that we go with Alternative B. This would allow for the big game that already exist on the allotment, and also another 4538 AUM's of cattle and also 1462 AUM's of sheep. I am very strongly opposed to any increase now or at any other time. I feel that we have a very good allotment, and one with eye appeal to the passing motorist. This has to be an asset to the B.L.M., and also the stockman. We do need more water developments, so we can distribute the cattle more evenly.

Sincerely

*Stanley Wood*

Stanley Wood

19.1

19.2



## Response Letter 19

- 19.1 Forage production data and trend and condition studies indicate that the Hanksville Allotment has a higher grazing capacity than the current average licensed use. Any increase in active preference would be implemented over a 5-year period in association with a monitoring program.
- 19.2 Alternatives C, D, and E identify several potential water developments for the Hanksville Allotment (see Table 2-4). This would provide better livestock distribution and reduce the possibility of vegetation overutilization.

## Comment Letter 20

December 28, 1982

Donald L. Pendleton, District Mgr.,  
Richfield District Office  
Bureau of Land Management  
150 East 900 South  
Richfield UT 84701

Re: Henry Mountain grazing draft EIS

Dear Mr. Pendleton:

20.1

The above draft EIS appears to be well written and documented. In reviewing the alternatives, though, it was difficult to understand why under alternative A overgrazing would occur when the proposed use of all other alternatives would be much greater. It is also not apparent why permittees would suffer the most reductions under alternative A in view of the forecasted overgrazing.

20.2

20.3

Why would overgrazing occur when forage use would increase on all but four allotments under any of the other alternatives (per table 2-3)? Could current use be maintained so that overgrazing would not occur and the vegetative and watershed resources enhanced for greater future productivity?

20.4

Thank you for considering these comments.

Very truly yours,

*Anthony J. Prates*

Anthony J. Prates  
P. O. Box 6257  
Salt Lake City, Utah 84106



- 20.1 Currently, six allotments in the Henry Mountain Planning Area are overgrazed (i.e., grazing use exceeds grazing capacity). Grazing use on the remaining 16 allotments is below grazing capacity. When grazing use on all allotments is adjusted to equal the grazing capacity, the figure exceeds average licensed use. Nevertheless, according to analysis of existing data, overgrazing currently occurs on six allotments (see Table 4-1).
- 20.2 Under Alternative A, No Change, grazing would be allowed at existing average licensed use, regardless of active preference and/or grazing capacity.
- 20.3 Refer to Letter Response 20.1.
- 20.4 As stated in Letter Response 20.1, average licensed use could be maintained or increased on 16 allotments without vegetation overutilization. Where average licensed use presently results in overgrazing, no improvement in watershed or vegetation could be expected. Alternatives C, D, and E are each designed to enhance watershed and vegetation through grazing management and rangeland improvement projects (see Table 2-4).



Penstemon  
urahensis

## UTAH NATIVE PLANT SOCIETY

Reply to: P. O. Box 6257  
SLC UT 84106

December 28, 1982

Donald L. Pendleton, District Mgr.  
Richfield District Office  
Bureau of Land Management  
150 East 900 South  
Richfield, Utah 84701

Re: Henry Mountain grazing draft EIS

Dear Mr. Pendleton:

The information included in the above EIS on rare and threatened plant species evidences concern for these species which is greatly appreciated. Grazing poses a very real threat to at least some of the rare plants found in the area, especially Sclerocactus wrightiae and Pediocactus winkleri.

It has been discovered, for example, that Sclerocactus wrightiae is seldom found in areas where the cryptogamic crust on the soil has been disturbed (Mutz & Neese, 1982 USFWS draft recovery plan for S. wrightiae). Cattle trampling is a major cause of this disturbance.

The lack of grazing in the No. & So. Caineville Mesa areas should help to alleviate trampling damage to some rare plant populations. Slight extensions of these unallotted areas would help to protect additional populations of S. wrightiae, especially around No. Caineville Mesa. Additionally, the geological strata upon which P. winkleri occurs should be a no grazing area if possible. Does the area where P. winkleri occurs qualify as a sensitive species habitat? If so, is that area included in the map on page 61?

Protective measure no. five (page 27) should adequately protect S. wrightiae from land disturbing projects if timely surveys are conducted by competent botanists. In the case of S. wrightiae, surveys would need to be conducted in April & May for any proposed project to ensure accurate identification. The recommendations of the recovery plan for this species currently in progress should be followed and all known populations occurring in the area closely monitored.

Thank you for this opportunity to comment.

Very truly yours,

*Anthony J. Frates*

Anthony J. Frates  
President - Utah Native Plant Society

AJF:t



## Response Letter 21

21.1

There is no designation of sensitive species habitat for Pedioncactus wrightii, nor has BLM received official designation from FWS at present. It is BLM's policy to manage for sensitive species as if they were officially listed as threatened or endangered, therefore preventing population declines by protection of habitat. See Standard Design, Construction, and Operation Features section, Chapter 2 in this Final EIS.

21.2

The recovery objectives in the Sclerocactus wrightii recovery plan will be incorporated into BLM's planning system for the areas involved. To date (April 1983), the BLM Richfield District Office has received only the technical review Draft of the Sclerocactus wrightii Recovery Plan dated October 1982.

## Comment Letter 22

December 29, 1982

Mr. Dee Ritchie, EIS Team Leader  
Richfield Office, RLM  
150 East, 900 North  
Richfield, Utah 84701

Dear Mr. Ritchie,

- Overall, this Draft Henry Mountain Grazing EIS is too vague concerning the BLM's intentions for specific areas. Nothing is said in the Draft EIS about the present amount of overgrazing on the Henry Mts. other than the statement "localized overutilization would continue on portions of six allotments" (p. 4). Without knowing the present condition of the range, how can the public comment on the BLM proposals? Better facts should have been included, especially ones showing the locations of overgrazed areas and proposed range improvements.
- Not enough information is given to support alternative E which sacrifices the bison herd, Cultural Resources and Visual Resources so that the number of cattle can be greatly increased. This is not a balanced multiple use plan.
- The information is presented in a confusing form. Alternative E would almost double the livestock grazing from present levels, yet 40 permits would have reduced grazing permits (p.119). Is the present level of grazing limited by the ranchers not using all of their available AUs or by the BLM to reduce overgrazing?
- Table 3-2 lists "Threatened, Endangered or Sensitive Plants", but there is no clear discussion of how the BLM plans to protect these plants- only the nebulous statement: "Should the BLM determine that there might be an effect on listed species, formal consultation with the Fish & Wildlife Service will be initiated" (p.27).
- Alternatives C,D and E all have the same acreage for "Land Treatments" (p.2). I find it hard to believe that 23,50 acres have to be treated. Why isn't there a discussion of the individual areas proposed for treatment and comments about the impacts of treatment on each? For instance, what would happen if "Land Treatments" were not used on areas where they would affect VRM objectives?
- Alternative E would significantly reduce the number of bison available to hunters (p.106). The reasons for this are not clear and no statement is made as to how the present herd size



Comment Letter 22

22.8  
(cont.)

| could be maintained under Alternative E.

I hope the final EIS will address these problems and clarify how the BLM plans to manage grazing on the Henry Mountains without destroying other multiple use values.

Sincerely,  
Owen Severance  
P.O. Box 1015  
Monticello, Utah  
84535

Response Letter 22

22.1

The discussion on rangeland condition presented in the Summary is a brief synopsis of the information presented in Chapter 4. The Alternatives C, D, and E section of Vegetation, Chapter 4, identifies the six allotments and gives further information regarding "localized overutilization." Allotment locations are shown in Figure 1-2.

22.2

The present condition of the rangeland and other resources/values is discussed in Chapter 3, Affected Environment. Table 3-3 summarizes the present rangeland condition (ecological condition, trend, grazing use, production potential, etc.) for each allotment and unallotted areas. Data were based on 10-12 years of monitoring studies supported by a recent soil-vegetation inventory.

22.3

Allotments where overgrazing does or would occur are identified in Chapter 4. Most "localized" overgrazing would occur around water sources and in riparian areas. Printing costs prohibited inclusion of maps of a scale small enough to effectively depict all such areas.

Exact locations of potential rangeland improvements have not yet been determined. Approximate locations are shown in Figure 4-1. Prior to construction of any rangeland improvements, a site-specific environmental assessment would be prepared. Also, the Standard Design, Construction, and Operation features identified in Chapter 2 would be followed to ensure that no significant impacts to the environment would result.

22.4

Under Alternative E, the preferred alternative, the bison herd would be maintained at 200 mature animals, which is the population size agreed to by UDMR and BLM. This is below the estimated current population.

Cultural and visual resources would not be sacrificed under this alternative. Any rangeland improvements would be accomplished in accordance with the Standard Design, Construction, and Operation features described in Chapter 2. The protective measures would minimize and/or mitigate adverse effects to natural resources or values. However, even with mitigation, there could be long-term contrasts created by some improvements and possible damage of cultural resources. These would constitute trade-offs for improvements to benefit big game and livestock grazing values.

22.5

Chapter 4 presents all environmental consequences by resource. It was felt that this arrangement would provide the reader with a quick, compact means of comparing environmental impacts. Table 2-5 summarizes major environmental consequences by alternative.

On all but one allotment, present grazing levels (average licensed use) have resulted from permittees not using their entire active preference due to such factors as drought, economic conditions, personal choice, etc.

22.6

Refer to Letter Response 12.13.



22.7

Areas containing approximately 24,300 acres have been identified as having good probability of success for land treatment. The criteria used to identify areas where land treatment should be proposed are presented on Page 85 of the Draft EIS. These criteria include: (1) need to reduce downward trend in rangeland condition; (2) need to improve site productivity; and (3) needs of grazing animals (livestock and big game).

As indicated in the Land Treatments section under Vegetation, Chapter 4 in this Final EIS, specific land treatments have not been identified. Figure 1-3 depicts the planning/decision-making/implementation/monitoring process. Following the decision of the District Manager, AMPs will be developed which will specify the specific boundaries for each individual area of land treatments and the type of treatment to be performed. Prior to treatment an environmental assessment will be prepared to assess and mitigate any impacts.

Areas meeting the criteria for land treatment occur primarily in "areas of highest scenic quality. If treatment were not performed, the problems that resulted in the proposal for treatment would continue to exist, and management objectives would not be met. Treatments in areas of high scenic quality would be mitigated by such actions as designing the size and shape of treated areas to appear like natural openings, removal of or on-site disposal of vegetative debris and firewood, rapid seeding and reestablishment of vegetation, etc. Such actions would reduce both the extent and duration of visual impacts.

22.8

Under Alternative E, bison would be managed for a post-hunt herd size of 200 adult and yearling animals. This number has been agreed to by BLM and UDW. A total of 2,088 AUMs on BLM lands would be provided for bison under this alternative (see Table 2-2).



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

1860 LINCOLN STREET

DENVER, COLORADO 80295-0699

DEC 23 1982

Ref: 8PM-EA

Mr. Donald L. Pendleton, District Manager  
Richfield District Office  
Bureau of Land Management  
150 East 900 South  
Richfield, Utah 84701

Re: Henry Mountain Grazing Draft Environmental Impact Statement

Dear Mr. Pendleton:

The Region VIII office of the Environmental Protection Agency has reviewed the above-referenced document and would like to offer the following comments for your consideration in preparing the final EIS.

(1) In the Standard Design, Construction and Operations Features Section, BLM makes a laudable commitment to the protection of riparian areas (No. 12, pg. 27). The need for such protection is documented on page 37 where it is noted that approximately one half of the riparian areas surveyed so far are in poor condition (approximately 7,163 acres). However, four of the five alternatives (A, B, D and E) propose no change in the condition of any riparian zone, "...because no fencing or changes in the period of use for cattle are proposed to protect or change the pattern of use in riparian areas". This statement is in apparent conflict with BLM's commitment to protecting riparian areas. It is our understanding that BLM is making an effort to protect these areas by fencing and the elimination of grazing. The apparent discrepancy in the DEIS should be clarified in the final document.

(2) BLM has identified areas of severe man-caused erosion (pg. 42) but has not suggested how these areas will be improved. In fact, the active preference in the Hanksville allotment is proposed to be increased although this allotment contains at least two severely eroded areas. This management prescription gives the appearance of making an already deteriorated range condition even worse. We understand that this may not be the case and, in fact, BLM will protect these highly eroded areas. The specific management techniques and schedule for doing this should be identified in the Final EIS. In general, BLM should consider a separate section dealing with the management of severely eroded areas. This would offer BLM the opportunity to demonstrate to the public that the lands in question are being protected and improved.

(3) In determining the probability of success for proposed land treatment measures (pg. 85) the EIS identifies several criteria which would preclude land treatment. Based on these criteria, most of the land in the management area would not be eligible for land treatment. BLM should identify any management techniques proposed for dealing with erosion problems in these areas. For example, we understand that under drought conditions, certain areas would not be available for grazing in order to protect the stressed vegetation.

23.1

23.2

23.3



-2-

23.4

(4) Efforts should be made to estimate the amount of Total Dissolved Solids contributed by the grazing area to the Colorado River System under the various alternatives.

(5) EPA supports the efforts by BLM to establish and modify management plans for each allotment based upon actual field data. Only in this way is it possible to assure an environmentally sound management program.

Based upon EPA's rating system we have rated this EIS as LO-2, which means that we have no objections to the proposed actions but feel the EIS could be improved in the manner indicated. We appreciate the opportunity to review this document. If you have any questions, please contact Mr. Gary Voerman (FIS 327-4831) of my staff.

Sincerely yours,

*Steven J. Durham*  
Steven J. Durham  
Regional Administrator

23.1

Refer to Letter Response 17.20.

23.2

The purpose and need of the grazing management program, as described on the first page of Chapter 1, is to maintain or improve public land resources such as soil, water, and vegetation. The following is being implemented to control the erosion problems mentioned in the EIS: The Bull Creek Watershed Management Plan was completed in April 1983, with project work to begin about May 1983. This will involve streambank seeding and installing instream log drop structures along with other miscellaneous jobs. A Watershed Management Plan for Nasty Flat is scheduled to start this fiscal year (1983). The correction of erosion problems on Nasty Flat will probably involve installation of gully plugs. The Meadow Gulch headcut is a recently identified erosion problem located in a bottom of a key grazing area; this problem is being addressed in MFP recommendations. Proposed methods for correction and improvement of the area include changing the period of grazing use, fencing portions of the area around the headcut, and conducting an engineering analysis to determine the feasibility of constructing an erosion control structure.

23.3

Where wildfire, road and powerline construction, seismograph roads, oil and gas exploration, or other surface disturbance occurs, management has the option and often requires that land treatment (seeding) be done. Even in areas where probability of seeding success is low, efforts are made to return the area to the natural state or improve it if possible. Temporary nonuse, changes in period of grazing use, water pipelines, and hauling water are used as management tools to prevent vegetation overutilization. Other methods of erosion control include contour furrows, check dams, gully plugs, fencing, etc., as mentioned in Letter Response 23.2.

23.4

No attempt to quantify the amount of TDS contributed to the Colorado River from the grazing area was made because of such variables as size, location, and extent of overgrazing for each watershed area. Overgrazed areas could be separated by several miles and be affected by other variables such as climate, precipitation, geology, soils, and vegetation.

Under Alternative A, there would be no change in present TDS levels. Under Alternative B, there could be more TDS added to the Colorado River. Alternatives C, D, and E could decrease the amount of TDS presently contributed to the Colorado River system.



## Comment Letter 24

UNITED STATES DEPARTMENT OF AGRICULTURE

FOREST SERVICE  
324 25th Street  
Ogden, UT 84401

1900

JAN 19 1983



Mr. Donald L. Pendleton  
District Manager  
Richfield District Office  
Bureau of Land Management  
150 East 900 North  
Richfield, UT 84701

Dear Mr. Pendleton:

Thank you for the opportunity to review and comment on the Draft Henry Mountain Grazing Environmental Impact Statement. The statement is complex and requires careful study. The titles of each alternative did not clearly reflect the content of the alternative. For example, (A) is the proposed action and (E) is the preferred action. It is difficult to determine the difference, initially. Also, the "No Change" in (A) leads one to question the meaning of (B) No Action. We relied heavily on Table 2-5, referring to other tables and written sections for clarification. We compliment you on your efforts to display alternative land management emphasis.

Page 15, "Description of Alternatives," states that rangeland improvements involved in Alternatives C, D, and E could be implemented in either Alternative A or B. If A or B contained the potential improvements, then many of the undesirable aspects of these two alternatives would be removed. Regardless of this, we find that Alternative B would be unacceptable because it implies grazing use in excess of potential capacity and, therefore, probable continued deterioration of rangeland resources. Alternative A with range improvements implies that nearly all adverse aspects could be corrected and there could be an excess of forage available for wildlife and livestock, but not necessarily in the most desired location. It also implies a useful but unused forage resource by restricting authorized grazing to levels below future supply.

Alternative A, with or without improvements, would be more acceptable if it attempted to treat all members of a user class fairly or more equally. Under this alternative, Table 4-1 shows 10 allotments overused by wildlife and six allotments overused by livestock under the 5-year average, along with 16 allotments either underused or properly used by livestock. It appears that operators who have reduced average livestock use below the active preference level for range protection, drought, or hardship are being considered no differently than those who may have continued to exploit the range. On page 15 under alternative A, we

24.1

24.2

24.3

## Comment Letter 24

Mr. Donald L. Pendleton

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24.3  
(cont.)

interpret that either the 5-year average use or 1982 use, whichever is the greater, would be considered as the proposed livestock grazing level; this needs to be expanded as to what the 1982 level of use really means.

Alternative E appears to be the optimum potential output for both wildlife and livestock. Presumably, this alternative attempts to implement the "Multiple Use" concept. Whether a peak 50,487 AUM's of livestock use can be obtained or not, Alternative E is our recommended alternative. We say this with the proviso that the prescribed improvements are economically attainable and that there would be a gradual transition from Alternative A to Alternative E.

24.4

In Table 2-5, we suggest that the negative aspects of rangeland improvement are too strongly stated, particularly as they relate to soil and water quality. In our experience of rehabilitating many thousands of acres, any measurable damage to these two components have only occurred when the damage was preceded by a catastrophic event such as a 50-or 100-year storm. The results of either Alternative A or B could be much more detrimental and would be of a much longer duration. We find prolonged overuse by either livestock or big game unacceptable in Alternatives A and B.

24.5

In relation to range improvement techniques starting on page 83, we firmly believe that a grazing formula designed to meet vegetative requirements is necessary. Some variation of planned rest, whether it is simple deferment or full-season rest, is necessary to speed recovery of ranges in the lower condition classes.

Soil moisture is a relatively reliable index for estimating treatments and the seeding species to use on an area. However, there are two major problems using average annual precipitation:

(1) Other environmental features such as average temperature, frost-free growing season, soil texture, etc., also influence what species may grow on a site.

(2) Seldom do we know the actual precipitation on a site specific area since it is so variable from valley to valley.

For these reasons, we recommend that on-site species be used to provide a better index to seeding suitability. The ideal situation would be use of habitat types or, in some cases, range sites. In the absence of this type information, we recommend use of dominant vegetation such as sagebrush subspecies to indicate site potential.

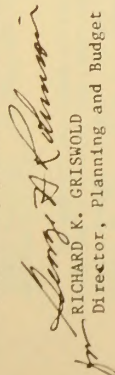


## Comment Letter 24

Mr. Donald L. Pendleton

3

Again, thank you for the opportunity to review and comment on the subject draft statement. Hopefully, our comments will be of some value in your effort to assemble a final document. If we can be of any further assistance, please let us know.

  
RICHARD K. GRISWOLD  
Director, Planning and Budget

## Response Letter 24

24.1 Please refer to Letter Response 17.1.

24.2 BLM has responsibility for the protection or enhancement of rangeland resources on each planning area allotment. These allotments, of course, have varying ecological conditions and trends, reflecting complex interrelating variables, particularly human influences. BLM recognizes that grazing management programs need to be fair and equitable with all permittees. Unfortunately, site-specific land management practices and equitability among all permittees may not always be compatible objectives. Alternative A would be the continuation of the present management situation, based on average licensed use. As stated in this Final EIS, it is not the BLM's preferred alternative.

24.3 Please refer to Oral Testimony Response 23.

24.4 BLM agrees that rangeland improvement results in positive benefits to soil and water. However, the EIS process requires that analysis considers any adverse environmental effects which could not be avoided should the proposal be implemented. This was the intent of Table 2-5, which shows irreversible/irretrievable commitment of resources and relationship of short-term uses to long-term productivity. Emphasis should be placed on the word temporary. This table states "there would be a temporary (1-3 years) reduction in water quality and temporary increased erosion, while vegetation became established." Positive aspects of land treatments are discussed under Alternatives C, D, and E and the Conclusion sections in Vegetation, Soils, and Water Resources, Chapter 4 in the Final EIS. The Vegetation section states that, through land treatment measures, the productivity of rangeland forage could increase as much as 10 times in some areas.

Your comments concerning Alternatives A and B are correct. See the first paragraph in Letter Response 14.1 regarding vegetation overutilization under Alternatives A and B.

24.5 BLM agrees that a grazing system should be designed to meet rangeland resource requirements. Presently, grazing systems incorporating planned rest are already in place on ten allotments under AMPs or management agreements in the planning area. With additional fences and water developments, such systems will become a part of the management of seven more allotments. On five allotments it is impractical to divide the range into management units; therefore, light seasonal grazing will be practiced. Literature cited in the Range Potential section, Chapter 3 in this Final EIS, supports this practice. Trend and actual use studies on many allotments in this area also support this practice (USDI, BLM, 1982a). A more precise grazing system on each allotment will be developed with permittees as AMPs and agreements are made.

Criteria used to select rangeland sites for land treatments include many of the factors that you proposed. However, methods of treatments and species selected for seeding are dependent on many factors in addition to environmental features. These factors include meeting management objectives and constraints imposed by other land uses (i.e., establishment of wilderness areas).



24.5  
(cont.)

Figure 4-1 in this Final EIS gives approximate locations of potential rangeland improvements, including land treatments. These sites will receive further on-the-ground study as AMPs are developed.



**SOUTHERN UTAH STATE COLLEGE**  
**CEDAR CITY, UTAH 84720**

January 20, 1983

School of  
Science

Mr. Don Pendleton  
District Manager  
Richfield BLM Office  
150 East 900 North  
Richfield, Utah 84701

Dear Mr. Pendleton:

I am writing in reference to the Henry Mountain Grazing Draft Environmental Impact Statement (DEIS) issued October 1982. As a professional range ecologist I am concerned about the impacts of grazing on the range ecosystems and the impacts of management decisions on the range livestock industry.

The DEIS evaluates the impact of various levels of livestock grazing on the individual grazing allotments and attempts to arrive at optimum stocking rates and management for each allotment. Two methods were used to arrive at these stocking rates: 1) the soil vegetation and inventory method (SVIM), and 2) analysis of trend studies established in the late 1960's. I am concerned that no vegetation inventory method (including ocular reconnaissance or SVIM) is sensitive enough to accurately determine stocking rates. These methods merely establish an initial stocking rate, which is already available. The statement in paragraph 3 page 80 and the appendix 2, pages 130 - 133 support this contention. As indicated in the DEIS stocking rates can be accurately assessed only through: a) trends in range condition, b) actual use, c) utilization, and d) climatic patterns.

As you are aware I have evaluated many of the trend studies in your district relative to legislation extending livestock grazing within Capitol Reef National Park and the surrounding area covered in the DEIS. I have assisted individual permittees in the evaluation of studies within their own allotments, the concerns of which will be addressed by these individuals.

It would be difficult and unnecessary to address each individual trend study, but I have some general comments and conclusions that I wish to share with you and your staff. During the evaluation of these studies I have discussed some interpretations and obvious errors in data collection and recording with Larry Oldroyd, Roger Twitchell, Max Robinson, and Dee Ritchie. In general, I found no serious disagreements with the long term trend evaluations, though I did disagree on the interpretation of some. My major concern was the devastating impact that the unprecedented drought of 1976 & 1977 had on those desert ranges. This was apparent even on those allotments (Wild Horse and North Bench) that received no livestock grazing during that period. The vegetation changes that occurred during that period could be interpreted as a



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page 2

downward trend and possibly blamed on livestock grazing. Shadscale (*Atriplex confertifolia*) was apparently very sensitive to the drought and disappeared from several study plots. This same situation occurred at the Desert Range Experiment Station during that same drought period. I am convinced that assessment of trend, particularly those on desert ranges, must be evaluated very carefully. Vegetation retrogression can occur even in the absence of livestock grazing as a result of such phenomena as severe drought, insect infestations or rodent activity. An excellent example of this situation can be found in Sharp and Sanders (1978).

In general the trend studies exhibited apparent trends that fluctuated in response to wet and dry years and general widespread deterioration during the severe drought years of the mid 1970's. Trends are evaluated by comparing two points in time, and if one compares, for example, 1968 and 1980 he could arrive at a different conclusion than if he compared 1978 and 1980. In my judgement most of the trend studies exhibit upward trends following the drought, but data in the DEIS is available for only three of these years and evaluations are based on long term trends. This leads me to conclude that current short term trends show greater improvement than is apparent to the reader of the DEIS, and that stocking rates are closely in balance with the available forage allowing the vegetation to express its natural potential. I would strongly urge your staff to include subsequent years data (1981 and 1982), if available, and provide an additional column of short term (1978 - 1982) trends in table 1, appendix 2, pages 126 - 129. It would also be desirable to include the graph of precipitation for the Henry Mountain Resource Area developed by Max Robinson.

In the evaluation of trends it is crucial that study plots be located in key areas and that they accurately reflect trends on the allotments as a whole. Some trend studies are located on stock trails or concentration areas that receive greater grazing pressures than other parts of the allotment. These factors must be taken into consideration when management decisions are made based on these data. The DEIS shows that there are only 127 5X5 foot plots located on 1,213,021 acres within the study area. This provides one such plot for each 10,331 acres or one for each 16 square miles. It is apparent from these figures that the area is grossly under sampled and interpretations should be tempered by this knowledge.

It is my professional opinion that the allotments covered by this DEIS are, for the most part, being properly managed and current stocking levels are in balance with the forage resource. On allotments where definite problems exist the solution could be improved distribution rather than reductions in livestock numbers. Improved distribution may be accomplished by development of additional water or drifting animals into the areas presently receiving lighter use. In certain situations additional fencing might also be advantageous.

Sincerely,

*James E. Bowns*

James E. Bowns, Ph.D.  
Professor of Range Ecology

JEB:js

25.1

No trend data have been collected for the years 1981 and 1982. Trend data are available for the years 1978 through 1980. However, as pointed out by permittees in the Henry Mountain Planning Area, livestock numbers were much lower than average during the 1978-1980 period because of the 1977 drought. Therefore, trend data for these years would reflect lower than average livestock use with average precipitation. These data would not be as reliable as the long-term estimate shown in the right-hand column of Table 1, Appendix 3 in this Final EIS. The precipitation graph you requested has been added to Appendix 3 in this Final EIS.

25.1



## Comment Letter 26

## Comment Letter 26

January 21, 1983

To Mr. Pendleton and/or all other BLM environmentalists concerned,

I would like to make comments, ask questions and make proposals concerning the Draft Henry Mountain Impact Statement.

I am concerned about all of the Henry Mountain area allotments, but my main concern and interest pertains to the Blue Bench allotment.

As I read the draft I found that you were planning a 40% cut in the Blue Bench allotment, but the cut is not necessary if the BLM would co-operate with the permittees in management and planning. In chapter 2 page 17 in the draft the figures show that in the Blue Bench allotment we are not using all of the forage AUMs that are available. It shows that there are 4,598 active AUMs, but there are only 1,963 in use, then you have 2,749 AUMs of available forage, which comes to a difference of 786 forage AUMs that are not being used. These figures show that a 40% cut in this area is unnecessary. If this proposed 40% cut goes into effect you are taking away from us 40% of our income. How many of the BLM employees and others standing behind this would be willing to take a 40% cut in their wages? If this cut is necessary, why not cut out the 60 head of buffalo that are in the Blue Bench allotment that are not even shown on the table in chapter 2 page 17. The people in the BLM office here in Hanksville know that these buffalo are in this area, but they are not mentioned in the draft as being there. The DWR does not pay grazing fees for these buffalo that graze in this area, so it only makes sense to do away with the non-paying buffalo instead of the livestock that pay for their grazing rights.

If the government employees would look towards the future they would see that cutting the livestock grazing rights is the first step towards causing a beef shortage and higher food prices, which would effect the whole nation, not just the people in the immediate area. A 40% cut would make it very difficult for the livestock owners to survive. I don't feel that such drastic measures are needed. If we cannot work this problem out through good management and planning and the 40% cut goes into effect, I would like to propose that the cut be made first with the permits that take non-use on their BLM permits. If the cut is necessary, then the AUMs of the non-users would satisfy the 40% reduction and would not hurt the income of the livestock AUM users and would not cut the BLMs grazing fee revenue or hurt local economy.

26.1

(2)

New considering the placement of the test plots in the Blue Bench allotment, the allotment is 16 miles long and 14 miles wide, but the test plots were placed in a 4 mile square area, in the heaviest used portion of this allotment where all roads, trails, fence lines and water holes are. But the areas where there are no roads were not tested, I do not feel that this was a fair test.

26.2

It seems that the people that were responsible for the testing did not consider that these other areas could be used, with good water improvements, new trails and no fences also reseeding, spraying poisons on non-usable plants and co-operation with permittees in doing so. With these improvements we could use the whole 16 by 14 mile allotment. There-for, there should be new testing plots established and the permittees should be allowed to designate where the test plots should be placed, since the testing plots should be placed by someone that knows the area and know where cattle are actually grazing.

26.3

Existing fenced pastures in the Blue Bench allotment are not equal in size or forage. I propose we get out of the pasture phase and let the cattle graze the entire allotment. This would cut down on the over use in small fenced areas. It has already been proven that fences do more harm than good, for example: The Hanksville allotment that does not have fences has a proposed increase, most all other allotments that have division fences are facing reductions. This factor alone should prove to the BLM that their management plans do not work. There-for, I propose that we as permittees be allowed the option of making and maintaining our own management plans for a given amount of years, then have another environmental study taken. This proposal should be given time to work or fail before any action toward reductions should be made.

At this time I would like it to be on record that I disagree with all proposals in the Draft Henry Mountain grazing Statement Booklet, and also to propose that we have no wildlife in our allotment.

26.4

I would also like to know why the Blue Bench allotment is on the bottom of the improve category. I feel that our needs in the Blue Bench allotment are just as important as the other allotments that have priority over ours. Are you discriminating against our allotment?



Comment Letter 26

Response Letter 26

(3)

26.5

I also disagree with The Ranch Budget table 1 page 145. Because no one pays \$850.00 per head for BLM desert permits or \$731.00 per head for forest permits in our immediate area. When they have BLM or forest permits they do not use pastures for the same cattle. They also do not run yearling steers on BLM or forest permits in our area. Therefore, your figures on the raising and handling would have to be adjusted considerably. If these figures are state wide figures they should not be used in this draft statement, the BLM should use figures and facts from the Henry Mountain area only, not state wide. The facts used that were taken from other Utah areas or facts from other states should not be used, only figures and findings from the Henry Mountain area should be used. Other states or areas have no bearing on what should be done here.

Facts and figures involving the count of buffalo in these areas is considerable off. I am a licensed guide and have been back in areas where there are no roads and have seen many more buffalo than are considered in your count. At this time you are only considering 2322 total AUMs for buffalo which amounts to 196 head of buffalo for 12 months. You are only considering about 50% of the buffalo that are actually there according to the DWR count. In all fairness you should consider the count by the permittees instead of just the DWR and take time to go with the permittees and count not only the ones by roads that can be seen easily, but also the ones that are the hardest to find in each allotment, which would take more than just a weekend to ride and count.

26.6

I would appreciate your consideration in answering these questions and reviewing these proposals and hope that you can work with us as permittees instead of against us. Realizing that our wants and needs as a livestock minority are more important and necessary than the DWR and all environmentalist groups which are trying to ruin us. You should realize that livestock in our future survival is more important than sight seeing, picnic areas and big game.

26.7

Terry L. Albrecht  
Box 202  
Hanksville, Utah 84734

26.1 Please refer to Oral Testimony Response 32.

26.2 Please refer to Oral Testimony Response 49 regarding placement of trend study plots.

Potential rangeland improvements that would remedy or improve livestock distribution problems have been identified for each allotment. These improvements are shown on Table 2-4 and Figure 4-1 in this Final EIS.

Forage in areas considered unsuitable for livestock use cannot be allocated until proposed rangeland improvements are in place and functioning.

26.3 Please refer to the second paragraph of Oral Testimony Response 16.

26.4 Please refer to Oral Testimony Response 1.

26.5 The \$850 and \$731 figures referred to in Appendix 4, Table 1, are not "per head" figures, but totals paid for the respective BLM and FS permits. The "per head" costs are shown in the next column.

The analysis of economic impacts to Henry Mountain permittees was based on a study entitled "The Economic Impact of Potential Changes in Federal Grazing Policies on Ranchers in Wayne County, Utah" (see Jacobson, 1981, in References Cited section), which dealt specifically with Henry Mountain permittees.

26.6

For years BLM, in conjunction with UOWR and local livestock permittees, has conducted annual bison counts on the Henry Mountains. In addition, a research biologist has conducted periodic counts on the status of the herd since 1977. Census methods used in these counts have included aerial observations as well as vehicular and horse-mounted range rides. It is important to note that the total number of bison counted has never exceeded 325 animals; in fact, the possibility exists that some animals were double counted during surveys.

The most recent census was conducted by BLM and UOWR personnel in August 1982. A total of 254 animals, including 60 calves, were counted over a 3-day period. These data confirm earlier counts and herd size estimates.

Therefore, based on the data collected to date, there is no reason to believe that the herd population data and AUM requirements as stated in the Draft EIS are in error.

26.7

Please refer to Oral Testimony Response 14. For a discussion of BLM's planning process, refer to Steps in BLM's Planning Process, Chapter 1 in this Final EIS.





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February 2, 1983

Mr. Donald L. Pendleton

District Manager

U.S. Department of Interior

Bureau of Land Management

150 East 900 North

Richfield, UT 84701

Dear Mr. Pendleton:

A review of Henry Mountain Grazing Area has been made. We have some concerns regarding the draft.

27.1

1. We note that reference is made, "to meet UDMR's prior stable numbers on deer and long-term management goals for bison, antelope and bighorn sheep". I find no such commitment for domestic livestock. Are we reducing livestock to meet the desires of UDMR and BLM rather than the people who live in the area? Why hasn't livestock permittees been included in the same meetings with UDMR at the time DMR allocations were committed?

27.2

2. Your note on analysis of the terrain and weather suggests only one year report on moisture and that was a very dry year. You are not giving a sound appraisal of the area with only one dry year as an average.

We suggest you delay further reduction in permittee AUM's until an average of at least five years review of the area's moisture, weather, plant growth and plant deterioration or plant improvement can be obtained. Your present data does not hold true.

27.3

3. AUM's and animal size are items of contention and concern. Currently in your district you are using 1,000 lbs. for cattle, 130 lbs. for sheep and 90 lbs. for deer. It is our belief that these are extreme. Your range cows with calf should not include more than 800 lbs. and on the winter ranges 600-800 lbs. is an average. Many interpret that cattle consume 2 lbs. of forage per 100 lbs. of body weight per day. On our winter ranges, cattle generally loose weight, thus they are receiving less than the 3 lbs./cwt. body weight. This should be figured at close to 2 lbs./cwt. body weight.

In essence, with sheep, weights should be calculated on the basis of 110-130 lbs., because most herds have lambs and yearlings in their winter herds and not just top large ewes. They too loose weight and when forage production is considered should be more on the 2 lbs./cwt. body weight on winter ranges.

Mr. Donald L. Pendleton

Page 2

27.3  
(cont)

Where there are either a calf or a lamb at side and suckling then the ewe or cow will consume 1.3-1.5 times more feed to compensate for the young.

27.4

4. In our opinion surveying or monitoring the range could be a more practical method to determine the amount of livestock that is allowed on the range, determining whether plant population is increasing or decreasing and the condition of the plant.

27.5

We recommend as an alternative using of more sheep and also alternating sheep and cattle allotments, because as cattle or sheep graze a range, individually, some plants are not utilized but by crossing over allotments or utilizing in common certain instances, better utilization can be made and plant vigor continues to improve.

27.6

5. As an alternative we recommend that the stewardship program be put into operation and utilized to the highest degree possible. In fact, we recommend this program over any of your draft suggestions.

27.7

6. If more sheep are to be used, then a complete predator program needs to be initiated even prior to moving more sheep into the area for coyote and lion.

27.8

7. Plans for sheep should be in areas not available to the bighorn sheep. Domestic and bighorn sheep cross and this is a disaster.

27.9

8. The draft should always give first priority to the domestic livestock.

Sincerely,

*Malcolm Young*  
Malcolm Young  
President

MY:tr

cc: Verl Bagley, County Agent



## Response Letter 27

27.1

Livestock's counterpart to UDMR's prior stable numbers and long-term management goals are active preference levels. Alternative 8 analyzes grazing at active preference while allowing existing big game reservations.

It is BLM's policy to allocate forage based on grazing capacity and rangeland condition rather than on any prior commitment with livestock or wildlife special interest groups. Although UDMR provides big game population and distribution data, this agency does not assist BLM in the forage allocation process.

27.2

Appendix 3, Table 1 in this Final EIS shows trend studies on planning area allotments. These data have been collected since 1967, as indicated in the column "Years of Record". Additionally, Figure 2 in Appendix 3 graphically depicts precipitation records for the years 1967 through 1982.

27.3

BLM appreciates your concern regarding forage requirements for animals using rangelands in the Henry Mountain Planning Area. The livestock forage requirements you submitted generally agree with research findings for maintenance. These proposals are, however, minimal and do not consider many other factors essential to livestock production on rangelands, nor do they allow for responsible management of public lands.

The following are basic assumptions used to estimate grazing capacity and arrive at forage allocations for livestock and big game in the Henry Mountain Planning Area.

1. Cattle grazing use was determined to occur during the following periods: 32 percent in the fall, 31 percent in the winter, 31 percent in the spring, and 6 percent in the summer. Most sheep use is made during the fall, winter, and spring. Big game use the range yearlong.

2. A forage requirement of 800 lbs. (air-dry weight) for an AUM was used for analysis purposes. Forage production was measured on the basis of air-dry weight. Most research is based on oven-dry weight values (USOI, BLM, 1980). Forage requirements used in this EIS generally agree with those used or recommended by other experts and agencies (Bedell, 1982; Stoddart, Smith and Box, 1975; USDA, FS, 1980; Cook and Harris, 1968; Cook, 1970; Cook and Harris, 1977; USDA, SCS, 1978).

3. Cattle weights and, therefore, forage requirements, have not been well established for the planning area. Estimated cattle weights range from as little as 600 lbs. to in excess of 1,000 lbs. Sheep weights have been estimated from 110 to 150 lbs. The average weight of 859 lbs. was reported from four sampled herds in Wayne County (refer to Comment Letter 40). Cow weights through the Richfield Auction on February 9, 1983 varied between 900 and 1,100 lbs.; most of these cattle came from Grass Valley (Robinson, 1983). At Producers Livestock Auction at Salina on February 11, 1983 weights of 65 cattle averaged 1,013 pounds (from 815 to 1,335 lbs.) (Robinson, 1983). Heavy, fat cows and/or yearling cattle were not included in this sample.

## Response Letter 27

27.3  
(cont.)

4. Cows calve on the range from March through May. Calves are estimated to weigh between 120 to 200 lbs. when they move to the summer range; calves wean at 350 to 400 lbs.

Calv feed requirements for maintenance and normal weight gain when traveling 2.5 miles per day can amount to 42 percent of the total feed requirement of a lactating cow (Cook, 1970).

5. Most of the criteria used in making forage allocations for livestock apply to bison and other big game animals. One AUM was estimated as feeding 1 bison, 5.8 deer, 9.6 antelope, 5.5 bighorn sheep, or 2.2 burros for 1 month.

6. Grazing capacity estimates derived from the soil-vegetation inventory will not establish a final grazing use level for livestock and big game on the Henry Mountain Planning Area. This inventory was used only as a verification of previous studies. During implementation of the grazing management program, grazing capacities will be based on monitoring of actual use by livestock and big game and on-the-ground trend studies of ecological condition and forage utilization.

Body maintenance requirements may vary widely according to research. Other factors that must be considered when estimating forage requirements for livestock and big game animals are as follows:

1. Daily consumption of dry matter by cattle varies between 1.4 and 3 percent of live weight, depending on body size, type of diet, and condition. Daily dry matter consumption by sheep generally varies between 2.4 to 4.6 percent of live weight. Environmental stresses caused by high and low temperatures and other factors (i.e., mud) can change animal behavior and thus influence voluntary intake of feed (National Academy of Science, 1976). The distances animals must travel each day for water and forage also influence the forage required for maintenance and production (Stoddart, Smith, and Box, 1975). Cook (1977) states: "The nutrient intake of animals grazing winter ranges varies from area to area and is influenced by many factors of which intensity of use is most important."

2. Trampling may result in forage losses from 2 to 19 percent depending on grazing intensity and period of use (Stoddart, Smith, and Box, 1975).

3. Livestock graze the rangeland to gain, not merely maintain, weight. Also, cattle require 26 percent more forage during the last third of pregnancy than during the middle third of pregnancy, and 45 percent more when nursing a calf (National Academy of Science, 1976). Cook (1977) states: "While on spring ranges, animals are in early lactation and require from 25 to 30 percent higher nutrient level than animals in gestation."

4. Grazing use levels should occur at 65 to 80 percent of average useable forage production to allow for drought (Stoddart, Smith, and Box, 1975).



27.3  
(cont.)

5. The soil-vegetation inventory on the Henry Mountain Planning Area was conducted during a period of average or better than average forage production (see Appendix 3, Figure 2 in this EIS). Rather than adjust stocking levels down for this production level or allow for factors such as drought, temperatures, or traveling required to reach forage, BLM used the conservative 800-lb. per AUM forage requirement as the basis for estimating grazing capacity.

The assumptions listed above should assist in understanding BLM's rationale for grazing capacities and forage allocations. (References cited in this response appear in the References Cited section in this Final EIS.)

27.4

BLM has an on-going monitoring program for the Henry Mountain Planning Area. As indicated in the third column on Table 1, Appendix 3, some studies have been in place and read on a regular basis since 1967. In addition, a soil-vegetation inventory was conducted on the entire Henry Mountain Planning Area during the 1978-80 field seasons.

BLM plans to intensify its monitoring program on the planning area. This will be done in consultation with permittees, and their participation will be encouraged.

27.5

BLM concurs that, in some cases, the forage resource can receive more efficient use with less impacts to certain key species by allowing both sheep and cattle use or by alternating sheep and cattle use. However, BLM can only propose or analyze different levels of sheep use on allotments where permittees have an established active preference for sheep.

27.6

The allotments in the Henry Mountain Planning Area have been grouped into three categories: Maintain (M), Improve (I), and Custodial (C). The Planning Process section in Chapter 2 discusses these categories and describes their objectives. At the present time, BLM does not have a stewardship program in the Richfield District; however, as the opportunity arises during AMP development for allotments in the Maintain category, such programs will be considered for implementation.

27.7

Please refer to Oral Testimony Response 41.

27.8

BLM is aware that a major mortality factor for bighorn sheep is disease associated with domestic sheep. Therefore, there are no plans to reintroduce bighorn sheep on ranges currently used by domestic sheep.

27.9

Priority can be given to livestock only insofar as the principles of multiple use management and sustained yield are satisfied (FLPMA Section 102(a)(7)). Livestock grazing is only one of many legitimate uses of public land.

Don Pendleton, District Manager  
Richfield District Office  
Bureau of Land Management  
150 East 900 North  
Richfield, Utah 84701

RE: Draft Henry Mountain Grazing  
Environmental Impact Statement

Dear Mr. Pendleton:

We have reviewed the EIS Draft.

We were in attendance at the meetings of November 30th and December 1, 1982 in Loa, Utah. Considering all we have read and heard, we find none of the proposed alternatives acceptable. Instead we propose a cooperative plan between the BLM and local ranchers and respectfully request time to test its merits and jointly gather data. At the conclusion of a 3 year test period a new cooperative plan would be drawn.

28.1

The alternative we wish to propose is that there be no reduction in the AUM allocations until and unless data assembled from jointly conducted monitoring studies firmly indicates that a permanent reduction in the forage allocation for cattle is required to protect the range. We request time to obtain data which will substantiate this or an alternative belief and identify both negative and positive influences. We believe such a procedure is necessary for several reasons including paragraph 3 at page 80 of the EIS Draft which states in substance that while vegetation production data has been used to analyze the impact of the proposed action and alternatives such data is limited and must be supported by the results of monitoring studies before making forage allocation decisions.

28.2

28.3

There is a strong feeling among ranchers, including ourselves, that the data available in the EIS does not accurately reflect current condition of the range nor has the cause and effect of variable forces been given due consideration, e.g. drought years vs. wet years and wildlife changes of preferred habitat. Under these circumstances it would seem prudent to assemble new data through mutually agreed monitoring programs.

28.4

The Draft definitions of land suitable for grazing are rigid and eliminate from consideration land which because of slope or distance from water could, with good management techniques, add to the forage base. For instance, range areas over four miles from water could be used for grazing during some periods when snow accumulations are sufficient for herd watering requirements or if stream bed water holes were dug.

In the interim, while data is gathered, a written, voluntary allotment management plan worked out with, and approved by, the BLM and each rancher should be tested.

#### The Plan:

We recommend that the Sandy II Allotment be utilized as a model area through which we, working together, can try to develop the best methods of utilizing the Henry Mountain Grazing Range.

To accomplish this we would suggest a stewardship of the Durfee and Oliphant families assisted and guided by the BLM, plus Drs. James Bowns and Paul McCawley or other representatives of the State universities.

Let me reference my further remarks especially to the Sandy II Allotment because the Oliphants and Durfeys are the sole allottee there and can control the management of the allotment. The essence of what we suggest may hold true for the other allotments, but will require the formation of grazing associations with power to speak for the common allottees.



We propose to mutually select from Sandy II those areas, trend plot locations, and key species which will give the best data for determining range trends, forage utilization, climatic conditions and ultimately an accurate grazing capacity of this range. We stress that if there are different concepts as to how best to monitor and document range conditions we stand ready to help test any projects of this nature that the BLM or the universities may be interested in.

Dr. McCawley has already been authorized to establish test plots on Sandy II which may be utilized in seminar presentations he plans to make in 1983. Likewise, an invitation has been extended to Dr. Booms to utilize the area for any field trips he feels will benefit his students.

When the Sandy II trend plots are established, we shall do our best to aid in equipping these sites for the collection of desired data. For example, rain gauges located at the study sites will provide "on site" information to localize interpretation of trend data.

Monitoring procedures, meeting BLM standards, will be effected; these should include pictures, growth measurements, cattle usage, climatic conditions, stock water availability, and any occurrences which affect the trend or condition of the range. Our goal will be to document that which occurs on the allotment and to try to establish the factors which influence vegetation composition, production, and consumption.

The monitoring procedures will then become, insofar as practical, a part of the duties assumed by our ranch manager, Keith Durfee and any BLM personnel you might assign.

We would recommend quarterly meetings, at which time, the procedures and results could be analyzed and evaluated. The data and the analysis meeting will result in information which could be incorporated into the allotment management plan for the coming year. For instance, the data might reflect that we voluntarily come off the range a couple of weeks early in the spring or that we rotate pastures so that each is periodically deferred for a season or that springs be benefited or stream bed water holes be moved to even out cattle population. The analysis might indicate that we need to voluntarily reduce or increase the number of cattle for the coming year in particular parts of the allotment.

Additional time, and joint participation should result in the collection of information acceptable to all parties and enable the BLM to make more equitable, meaningful and enduring decisions. Utilization of this information in the annual allotment management plan could result in voluntary or compulsory adjustments to produce the most effective of all range management systems.

The initiation of allotment improvement projects pursuant of an agreed schedule beginning in early 1983 should complement improved management techniques and increase the productive range area.

Your sincere consideration of the foregoing alternative is requested. We anticipate that a decision on the EIS Draft alternatives will not be made before mid-year or even late 1983. We still desire to integrate the ideas of our proposal into our 1983 allotment management plan. May we arrange a meeting toward that end in Richfield in February 1983?

Very truly yours,

TERCERO CORPORATION

*W. Douglas Jones*  
W. Douglas Jones

28.5

# ADDENDUM

IF EIS alternative E is implemented, the adverse economic impact on Oliphant and Durfee family ranching operations, as well as six families of employees and supporting suppliers of goods and services from Wayne and Garfield County, Utah will be evident from the discussion below:

1. The Oliphant and Keith Durfee families have formed an operating alliance for cattle ranching on all of their properties in the Notom, Sandy, former King Ranch, and Mr. Ellen areas totaling about 7,700 acres of fee and leased land and 6,559 AUM's. The cattle herd size is projected to exceed 1,000 mother cows by late 1983.

2. If AUM's are reduced according to EIS alternative E, the Oliphant-Durfee group will experience a monetary loss greater than any other ranch or rancher in the area. The seriousness is detailed below:

Allotment	Oliphant-Durfee Pref. AUM	Alternative E Suggested % Change	Resultant Oliphant-Durfee AUM CHANGE
Blue Bench	1431	-40	-572
Hanksville	752	+70	+526
Nasty Flat	462	-15	-69
Sandy I	463	-29	-134
Sandy II	2228	-68	-1,521
Steele Butte	1223	-62	-758
	6940		-2,528

A 2,528 AUM loss X \$20.00/AUM equals a capital cash loss of \$50,560, not to mention a substantial yearly operating loss. This figure does in fact represent the minimum cash loss to be expected upon the proposed reduction of grazing rights which were purchased according to custom and permitted usage within the last three years. Since these anticipated losses are not to be compensated for, the issue of confiscation arises.

The question of prejudice arises when one considers that the two largest proposed AUM percentage reductions are in the Sandy II (68%) and Steele Butte (62%) allotments. The Oliphant-Durfee group participates in both allotments, and is the sole permittee in Sandy II. This proposed AUM reduction is apparently not supported by BLM vegetation production data since Sandy II data set forth in Table 3-3 at Page 45 of the EIS Draft states, "studies support a higher grazing capacity estimate".

The information concerning the bison herd and other wildlife, in the opinion of experts, other ranchers and ourselves, is not sufficient to support the recommended forage allocations. The answers to serious questions concerning the size of the wildlife population and their distribution, the required forage allowance for each animal, and migratory patterns of the herds are inadequately documented by supportive data. We and other ranchers strongly believe that the negative economic impact on the ranchers and their communities which would result from the implementation of alternative E cannot be rationally justified without the assimilation of a greater amount and variety of wildlife data.

A coordinated effort by the BLM, DWR, and especially the ranchers, to collect more data should proceed any decision changing the wildlife forage allocation. The November 29, 1982 meeting in Richfield was a positive first step but needs follow-up action.

28.7

28.8

28.9

28.10



## Response Letter 28

- 28.1 Please refer to Oral Testimony Responses 27 and 28.
- 28.2 Except as indicated in the right hand column of Table 3-3, monitoring studies adequately support the soil-vegetation inventory. BLM considers existing monitoring and trend studies, supported by the soil-vegetation inventory, adequate for making forage allocation decisions.
- 28.3 On most allotments, the grazing capacities indicated in this EIS are based on 10-12 years of monitoring studies, supported by a recent soil-vegetation inventory. Factors such as drought, changes in big game habitat, etc., were considered. For additional information concerning these factors, please refer to Oral Testimony Comment and Response 23 and Letter Response 6.3. Also, please see Figure 2 and Table 2 in Appendix 3.
- 28.4 The terms suitability, suitable range, and unsuitable range have been added to the Glossary in this Final EIS. These definitions were published by the Society for Range Management (1974) and should be helpful in understanding how suitability for rangelands is determined. BLM's criteria for determining suitability for specific rangeland sites are based on (1) distance from water; (2) slope or other physical barriers; (3) forage production; and (4) soil surface factors (SSF). These criteria were evaluated independently or in various combinations to arrive at the following four rangeland suitability classes: suitable, potentially suitable, unsuitable, and limited suitability.
- Final decisions concerning suitability will be field checked with permittees before AMPs are developed.
- 28.5 This Final EIS has analyzed all reasonable alternatives. BLM employees will meet with each permittee to obtain their proposals for implementing an AMP which will meet the objectives for the planning area. The meeting held in February 1983 with permittees is an example of the cooperative efforts BLM will make with all permittees.
- 28.6 Your observations are correct; if Alternative E were selected, the reductions you indicated would occur. Also, please refer to Letter Response 26.1.
- 28.7 Please refer to Oral Testimony Response 57.
- 28.8 The Henry Mountain Planning Area grazing management program has attempted to maintain and improve rangeland conditions and implement grazing use levels that would not exceed the rangeland's grazing capacity. The alternatives presented in this EIS would review, update, and revise this ongoing program based on the best scientific data available. Concerning the apparently conflicting data for Sandy 2 Allotment, please see Oral Testimony Response 58.

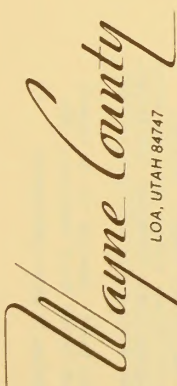
## Response Letter 28

- 28.9 Big game forage allocations were based on the best up-to-date information available to BLM. For example, the seasonal distribution of bison by allotment was based on research studies, annual aerial and ground counts, as well as direct input from UDWL personnel. Admittedly, more data would be helpful. However, BLM believes there is sufficient information available on the status, distribution, behavior, and dietary requirements of bison and mule deer to make correct forage allocations.
- 28.10 BLM intends to continue coordination with local livestock permittees and UDWL.



Response Letter 29

Comment Letter 29



LOA, UTAH 84701  
February 10, 1983

Re: Henry Mountain Draft EIS

Dear Mr. Pendleton:

The Board of Wayne County Commissioners has had opportunity to review with the Henry Mountain Resource Area Ranchers Committee grazing proposals for the Henry Mountain Resource Area.


The County of Wayne has a vital interest in grazing decisions and grazing regulations adopted by your Department which directly affect ranchers within the area. Wayne County is small in population and is very dependent upon ranching for the livelihood of its residents.

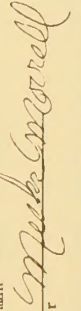
We have reviewed with the Henry Mountain Resource Area Ranchers Committee recommendations and comment concerning the Henry Mountain Draft EIS. We join in the recommendations made by the ranchers association by separate letter.

We recommend an upward adjustment of the "average use" values to reflect the actual grazing use of the permittees. We recommend five additional years of monitoring and study be completed before any action is taken with regard to increasing or decreasing preference ADMS. We believe the study is required to determine if the forage allocation per AUM now proposed to be used is realistic for cattle on the Henry Mountain winter ranges. It appears the present proposal may be too high and unnecessarily penalize grazers. Further, we believe adequate trend plots should be established and regularly monitored during the proposed five-year period to make a more accurate determination of available forage to be included in the allocation formula.

Sincerely yours,

BOARD OF WAYNE COUNTY COMMISSIONERS,

By  Chairman

Member 

RECORDING/TREASURER — LOMA BLACKBURN  
CLERK/AUDITOR — TERRY BLISS  
SHERIFF — DUANE BUCHANAN  
DEPUTY ASSESSOR — RICHARD FORSMAN

COMMISSIONERS  
JAMES YARDLEY  
JACK TANNER  
BOOTH WALTLINE

FERRILL CHAPPELL  
GUY E. PAGE

Mr. Donald L. Pendleton  
District Manager  
Bureau of Land Management  
Richfield, Utah 84701

29.1

The average licensed use figures have been changed in response to comments from the Henry Mountain Resource Area Permittees' Committee (see Oral Testimony Response 23). See Letter Response 27.3 for a discussion of forage requirements of livestock and big game. BLM will intensify and continue its monitoring program in the Henry Mountain Planning Area. See the second paragraph to Oral Testimony Response 16 and Letter Comment and Response 28.2 for further discussion.



# Defenders OF WILDLIFE

Donald L. Pendleton, District Manager  
Richfield District Office  
Bureau of Land Management  
150 East, 900 South  
Richfield, Utah 84701

Dear Mr. Pendleton:

We have reviewed the Draft Henry Mountain Grazing EIS and offer the following observations and comments.

We believe allocations of forage under your "preferred alternative" and all of the other alternatives are extremely biased in favor of livestock grazing. Further, it appears that the amount of forage this EIS considers to be available for bison has been reduced considerably by faulty data that assumes that bison do not roam further than four miles from a source of water and that they do not utilize steep slopes (from BLM working papers).

The Henry Mountain Resource Area is predominately public land. 69 percent of this area is BLM land. 21 percent is National Park and National Recreation land (public land). Only 9 percent is state land and a mere one-percent is privately owned. The major portion of this area is supposed to be managed under the concept of multiple use. But it appears the cows have grown so large they have blocked BLM's view of other multiple uses.

There can be no doubt but that the Henry Mountain area is severely overgrazed, by livestock. About 80 percent of the rangeland studied by BLM produces forage at 50 percent of it's potential, or less. The livestock allotment rated by BLM as being in the best condition produces forage at only 61 percent of it's potential.

Since, for the past four years, livestock use in this area has averaged only 45 percent of the preferred use, and since 84 percent of use throughout the area is by livestock, it is logical to assume that livestock grazing is the most important single factor contributing to the poor condition of this range.

In reviewing BLM background data on grazing habitats of bison and livestock it appears that the amount of forage listed as being available was based on the assumption that bison and cows will not graze further than four miles from a water source, nor will they utilize very steep slopes. We agree with these conclusions as they pertain to livestock - but not for bison.

I have observed Henry Mountain bison, and bison in other parts of our country, making good use of forage on extremely steep slopes. In fact, vertical escarpments are about the only place they do not travel. Further, studies prove, beyond a doubt, that bison will forage further than four miles from water. Therefore, there is more forage available for bison in this area than the EIS indicates.

We understand that BLM invited and paid travel expenses for an eminent group of bison experts who toured and camped in the Henry Mountains. Why

1244 NINETEENTH STREET, NW • WASHINGTON, DC 20036 • (202) 659-9510

30.1

Henry Mountains, pg. 2

30.1  
(cont)

were their observations and comments not included in this EIS? Surely, Mary Meagher's years of bison research would have enlightened BLM concerning slopes and water in relation to use by bison.

30.2

An example of the extreme bias favoring livestock in this EIS can be found on page 2. Ratios of livestock to wildlife extrapolated from this table practically ignores the concept of reasonable multiple use. Please explain why BLM believes the following proposed uses are equitable.

	Livestock	Wildlife
Current Use	5.1	1
Alternative A	5.1	1
B	7.7	1
C	2.7	1
D	12.3	1
E	4.1	1

About 67 percent of the BLM AUM's in Utah have been allocated. Statewide, the ratio of livestock AUM's in relation to wildlife AUM's is about 3.5 to 1. The Henry Mountain area provides critical habitat for Utah bison. Traditional herds of big horn sheep that once roamed these mountains, but today are represented by a tiny remnant population, could once again prosper with proper forage allocation and management.

The Henry Mountains are not just another series of public land livestock grazing allotments. This area represents a valuable, irreplaceable part of the public's resources. Presently, throughout the West, huge areas of habitat critical for wildlife survival is being lost to minerals development and to people places. Management of the Henry Mountain area offers BLM the opportunity to offset some of these losses and enhance and preserve some important values that soon will be in short supply and in much demand. And yet, BLM proposes to allocate even fewer AUM's to wildlife in this area than are allocated on a state average. Incredible!

30.3

Alternative "B" suggests that antelope and big horn sheep would be removed from the area. Since populations of both of these species of wildlife have historically been a part of the Henry Mountain area is the BLM saying that the Federal Land Policy and Management Act and the National Environmental Policy Act have been scrapped and are no longer of concern?

30.4

Alternative "C" poses a conundrum. This alternative alleges that management would be for "optimum big game production." By increasing livestock use by 13,173 AUM's and wildlife by only 9,719 AUM's? Aw, com'on now. We can count. This plan states "adjustments would be made in livestock use to accommodate increased numbers of big game." To optimize big game production wildlife AUM's would have to be increased, while holding livestock AUM's at the current level, or allowing less.

30.5

Riparian areas in this resource area are in sad shape, and yet they are critical areas for wildlife. We believe these areas should receive top priority for protection and reclamation. Riparian zones that have not been trampled beyond recognition respond rapidly, given some sound management and protection. Rather than going the route of promising more studies, the final EIS should identify riparian areas that will be protected and enhanced and include a timetable showing steps that will be taken and when the work will begin.



# Response Letter 30

30.1

The rangeland suitability standards for bison in the Henry Mountain Planning Area were developed because of concern by users and management. Bison do frequent rangelands in excess of 4 miles from water. During a study of bison suitability (Ritchie et al., 1980), an interagency team determined that bison typically traveled from 4 to 8 miles away from water. The initial assessment for analysis purposes set the suitability standards for bison at 5 miles. Bison also frequent rangeland in excess of 75-percent slopes, but not without some trailing and vegetation damage to the more gentle and suitable areas. The initial assessment for planning and analysis purposes set the suitability standard for bison at 75-percent slopes.

The bison suitability criteria were also developed by the interagency team. Not all participants were completely satisfied with the results; however, everyone agreed that these limits would provide a measure of protection to the rangeland and give some direction for planning and analysis purposes (Ritchie et al., 1980).

After the initial assessment on rangeland suitability, a field review will be conducted to determine the accuracy of standards. BLM, in consultation with UDMR and other users, will field verify and/or modify the suitability determinations where necessary. If field examination of allotment condition, rangeland trend, and vegetation indicate that suitability standards are incorrect and that an area can be grazed without damage to adjacent rangeland resources, adjustments will be made (Ritchie et al., 1980). Also, additional research and studies on bison may change the standards for bison rangeland, steepness of slope, distance from water, and soil surface factors.

30.2

Much of the Henry Mountain Planning Area is comprised of desert rangeland which provides little big game habitat but which can be used seasonally by domestic livestock. Therefore, forage allocations on these areas favor livestock over big game. This does not mean, however, that the forage allocation process is biased in favor of livestock.

A consideration of ratios rather than AUM allocations can be misleading. For example, under Alternative C, the overall ratio of livestock/big game AUMs is 2.7:1. However, on areas considered bison and deer crucial range (i.e., mountain proper allotments), big game would be allocated approximately 5,000 AUMs, whereas livestock grazing would be eliminated. In addition, no livestock grazing would be allowed on two unallotted areas (Flint Trail and Little Rockies) that have a high potential for desert bighorn sheep reintroductions.

Sound multiple-use management must be based on the most suitable uses of the rangeland resource rather than on ratios or statewide averages of livestock/big game AUMs.

30.3

Please refer to Letter Response 14.1. Alternative B requires that grazing be analyzed at active preference levels for livestock and existing big game reservations. Because there are no existing forage reservations for antelope or bighorn sheep, for analytical purposes only, no forage would be allocated to these species under this alternative.

# Comment Letter 30

Henry Mountains, pg. 3

30.6

Alternative "D" states that "Forage would not be provided for bison and they would be removed." FLPMA and NEPA state otherwise. You simply wasted paper printing this alternative.

30.7

On page 66, this document states, "For the past 3 years, UDMR has issued approximately 25 once-in-a-lifetime permits annually for sportsmen to hunt bison." About 20 years ago I was in the Henry Mountain area while a bison hunt was taking place. Were these hunters acting illegally? If not, bison must have been hunted in this area for a long time.

30.8

There was no discussion in this DEIS concerning the historical Burr Desert bison herd. Is it not possible to allocate forage in this area to re-establish bison in the Burr Desert? This issue should be evaluated.

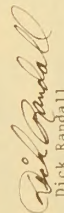
30.9

BLM proposes to make available 2,995 new AUM's for livestock through land use treatment. In alternatives C, D, and E, we learn these few AUM's translate into an increase of 13,173, 32,897, and 23,856 AUM's for livestock. What has BLM planned here? Double-decking the cattle? Having them graze in shifts? It doesn't compute. Where, in this overgrazed area, are you going to find these additional livestock AUM's?

30.10

We believe the potential for increasing deer numbers on critical summer range has been grossly underestimated. At least ten times the number of deer presently utilizing summer range inhabited this area 15 to 20 years ago. There are many reasons, and disagreements as to the cause of the decline of mule deer throughout much of the West. But deer populations are beginning to rebuild again. We believe 3000 AUM's should be allocated for deer summer range, about triple the 1,035 AUM's proposed in preferred alternative "E."

Thank you for the opportunity to comment on this DEIS. We would appreciate being apprised of evaluation of concerns we have raised.

  
Dick Randall

Great Basin representative  
Defenders of Wildlife  
Box 507  
Rock Springs, Wyoming 82901



## Response Letter 30

30.4

Your analysis only considers the total number of AUMs allocated and does not consider where AUMs are distributed. It must be remembered that much of the Henry Mountain Planning Area is comprised of desert rangeland, which provides very little big game habitat but which can be utilized seasonally by domestic livestock.

Also, there are areas considered crucial to the existence of big game species. For example, under Alternative C, big game would be allocated nearly 5,000 AUMs on allotments considered crucial summer range for bison and deer (Crescent Creek, Nasty Flat, Sawmill Basin, and Pennell) whereas livestock grazing on these same allotments would be eliminated. In addition, no livestock grazing would be allowed on two unallotted areas (Flint Trail and Little Rockies) where approximately 1,350 AUMs have been allocated to accommodate desert bighorn sheep reintroduction programs.

Conversely, under this same alternative, livestock grazing could increase significantly over average licensed use on allotments having marginal big game habitat (Wild Horse, Sewing Machine, Hanksville, Blue Bench, Robbers Roost, Bullfrog, and Waterpocket).

The proper distribution of AUMs on big game crucial ranges is more important than how many AUMs are allocated to big game throughout the planning area.

Please refer to Letter Response 17.20.

30.5

30.6

Bison were removed from Alternative D because of their direct competition with cattle for forage. Therefore, for analytical purposes only, removing bison forage requirements provided a better indication of the optimum livestock grazing level under this alternative.

30.7

The intent of the statement concerning bison hunting was to indicate the amount of hunting recreation presently provided by the herd. The first hunt (10 permits) was in 1950, followed by 9 years when no permits were issued. Since 1960, hunts have taken place each year except 1964, 1965, 1972, and 1973. The number of permits sold each year has fluctuated from 10 to the present 27 (25 resident and two nonresident). The Recreation section in Chapter 3 in this Final EIS has been changed to reflect this information.

30.8

The issue of re-establishing bison in the Burr Desert was not evaluated because (1) this was not identified as a significant issue; and (2) BLM is not aware of any formal plans by UOWR to re-establish bison in the Burr Desert.

30.9

Land treatment studies indicate that a total of 2,975 additional AUMs of forage could be made available for animal use (see Land Treatment section and Table 4-2 in Chapter 4). Under Alternative C, 2,392 AUMs would be allotted to big game and 423 AUMs to livestock; under Alternative D, 160 AUMs would be allotted to big game animals and 2,815 to livestock; and under Alternative E, 560 AUMs would be allotted to big game and 2,415 AUMs to livestock. Rangeland condition and trend studies, combined with monitoring and a recent soil-vegetation inventory, indicate that, currently,

## Response Letter 30

30.9  
(cont)

average licensed use exceeds forage production on only six allotments in the planning area. (See Alternative A under Livestock Grazing section, Chapter 4 in this Final EIS.)

30.10

The conclusion that only 34 percent of the forage on crucial mule deer summer range is considered nutritionally suitable/useable to deer was based on the assumption that current deer numbers are reflective of the grazing capacity of crucial summer ranges. Admittedly, factors such as disease, parasites, harvest rates, poaching, and predation may, at times, limit herd size below grazing capacity. However, there is no evidence that any of these factors is significantly affecting deer numbers and productivity on the Henry Mountains.

There is evidence, however, that summer rangeland condition could be limiting herd size. An analysis of summer range inventory data suggest that crucial deer summer range is dominated by low quality shrubs. Also, these ranges are deficient in protein because of a lack of nutritious forbs. Therefore, deer summer diets are nutritionally deficient because of poor quality forage. Unless there is a significant change from a shrub-dominated to a more perennial forb-and-grass vegetation type, these ranges will remain poor quality deer summer habitat and are not capable of supporting a larger deer population.

Based on these data, BLM has concluded that summer rangeland condition is a major factor limiting herd size: current deer numbers are reflective of the grazing capacity on crucial deer summer ranges in the Henry Mountains.

A study conducted by UOWR confirms these findings (Pederson and Harper, 1978).



2

31.3

The "average licensed stocking rates" developed for the DEIS in general underestimate the stocking rates to be expected on a typical year. This was caused by the inclusion of the drought years of 1977-78 and subsequent "build-back" years following the drought when calculating the average rates. In addition, for some reason the 1982 spring grazing use was also left off. This underestimation has significant effects on the assumptions and conclusions drawn in the DEIS. For example, the current range condition class is probably a result, on the average, of higher actual use rates than assumed in the DEIS. Such a phenomenon has drastic effects on the estimated impacts of your various alternatives. The main effect is that estimated range deterioration associated with Alternative B is more than likely overstated.

31.4

My last general concern is that no indication is given in the DEIS about how available forage on state and private lands intermingled with BLM lands is allocated. If this forage is not considered along with forage on BLM land when calculating grazing capacity, it is possible that forage production on several allotments will be underestimated.

31.5

My major observation specific to the Trachyte Allotment is that I cannot see how a 40% cut from active preference can be justified for two reasons. The first reason is that there are no trend or utilization studies on this allotment. Without such data, it is impossible to justify this cut. Secondly, the calculated average licensed use for this allotment in the DEIS is 1120 AUM's compared with a 2110 AUM active preference. I know for a fact that exclusion of the drought and "build-back" years from the averaging, along with inclusion of spring of 1982 grazing, would put actual licensed use very close to active preference.

31.6

The Trachyte Allotment also has a substantial amount of private and state lands intermingled with BLM land. In the spring, cattle on this allotment tend to congregate on the Trachyte Ranch property. This substantially relieves spring grazing pressure on BLM lands. State school sections on this allotment also receive substantial amounts of grazing, and they too should explicitly be considered.

31.7

Another concern I have is that no consideration is given for the use of blackbrush by acclimated cattle. During the winter months, cattle that are acclimated to the area gain a substantial amount of forage from the new shoots of blackbrush plants. In fact, if there is any snow cover, blackbrush is utilized readily enough to be referred to as a "preferred species."

31.8

My last observation specific to the Trachyte Allotment is a question about the origin of the Little Rockies Allotment. Land that was formerly the eastern third to half of the Trachyte and Cedar Point Allotments has suddenly been placed into a totally new allotment. It appears that this new Little Rockies Allotment was arbitrarily set up to accommodate the desert bighorn sheep with no public hearings about the decision.

The above discussion has brought out many concerns. The major points I have tried to make are that: (1) The data available to the BLM decision makers is so inadequate that any changes in current stocking rates are unsupportable, (2) there are enough serious errors in actual licensed use calculations that the assumed impacts reported for each alternative are suspect, and (3) some

February 23, 1983

Mr. Don Pendleton, District Manager  
Richfield District Office  
Bureau of Land Management  
150 East 900 North  
Richfield, Utah 84701

Dear Sir:

This letter presents my critique of the Henry Mountain Grazing Draft Environmental Impact Statement (DEIS). As an agricultural tender, I am concerned about the effects that the proposed actions will have on the profitability of the range livestock industry in this area. And, since my father owns and operates a ranch in this area, I have specific concerns about economic and ecological impacts of your proposed actions on the Trachyte Allotment. This critique will be in two main sections. First, I will present the more generalized concerns which I have with the data and methodology used in the DEIS. Then, my specific comments pertaining to the Trachyte Allotment will be presented.

31.1

My major general criticism is that data from the Soil-Vegetation Inventory Method (SVIM) have been used exclusively in lieu of trend and utilization study data for "consistency's sake." The tremendous amount of statistical error inherent in any ocular reconnaissance inventory method, such as SVIM, makes it impossible to statistically justify major cuts in existing stocking rates. The only place where such data are useful is when estimating an initial stocking rate on previously unstocked rangeland. Since these ranges have been grazed for decades, it is obvious that an initial stocking rate already exists. As indicated in the DEIS (Appendix 2, page 140), stocking rates can accurately be evaluated only through reliable data on (1) actual use, (2) range condition and trend, (3) forage utilization, and, perhaps most important of all on desert ranges, (4) climatic variations. Even reliable data on these factors requires very careful analysis to arrive at proper conclusions--the inherent variability in the SVIM data makes any conclusions drawn from it unsupportable.

31.2

My next general criticism deals with the utilization studies. Why does all utilization data shown in the DEIS correspond to trend study plots? It is unclear whether these studies involved clipping and comparing the forage from unprotected versus protected areas, or whether they too are the result of some "guess-timation" technique. Also, trend studies are purposely placed in areas of lower condition so that improvement can be easily detected. Utilization studies on such areas could be biased since fewer than average plants are established and/or greater than average animal concentrations occur in these areas. Such studies may not be indicative of the entire allotment.



## Comment Letter 31

3

important factors affecting available forage on an area (such as forage on intermingled private and state lands and forage obtained from so-called "non forage" plants) are not specifically addressed.

My recommendation is that no changes in stocking rate be implemented until they can be supported by the data. Even if a problem can be documented, the solution may involve changes in distribution rather than cuts in stocking rates. It is my considered opinion that the Henry Mountain ranges are stocked at an acceptable level although some areas may have distribution problems. Distribution problems are not usually solved by cuts in stocking rates. Increased water development and range improvements are more effective approaches.

Sincerely,

Kenneth H. King  
4563 West Palmer Drive  
West Valley City, UT 84120  
(Loan Officer, Utah Livestock PCA &  
MS Degree, Range Economics)

## Response Letter 31

31.1

BLM has adequate rangeland condition and trend, forage utilization, and climatic data on 19 of 22 grazing allotments (see Table 1 in Appendix 3 of this Final EIS). Existing ecological condition and trend have been affected in part by the stocking levels present throughout the study period. Permittees have not submitted nor has BLM collected actual use data. Big game population estimates submitted by UWR and average licensed use were the stocking level against which the monitoring data were analyzed. The soil-vegetation inventory is used in this Final EIS to support monitoring and trend study data.

31.2

The utilization data, in general, correspond to trend study plots because utilization studies are usually located on read in the same vicinity. Utilization has been estimated in two different ways. The first method involves a cage, which excludes all live-stock and big game; the forage inside the cage is compared to the surrounding area. The second method employs a transect in which a certain number of one or more key species is encountered and the amount of utilization estimated. These methods are often used in conjunction with each other and conducted immediately after the grazing season.

Studies are placed in areas identified as key areas that are representative of vegetation types furnishing a substantial amount of the forage on an allotment.

31.3

Please refer to Oral Testimony Response 23 and Table 2 and Figure 2 in Appendix 3.

31.4

State and private lands within a BLM grazing allotment, whether under lease or private ownership, may be used as a basis for exchange of use with BLM public lands. Under such circumstances, grazing capacity, as determined from rangeland surveys and/or actual use and monitoring, may be used as the basis for the exchange. BLM cannot, however, make forage allocations on lands not under its jurisdiction.

31.5

Please refer to Oral Testimony Responses 23 and 59.

31.6

Private and State lands under lease by permittees may be used on an exchange of use basis or may be used as the permittee wishes as long as trespass upon BLM public lands does not become a problem.

Private and State-leased lands can and do furnish substantial amounts of grazing use and, when managed along with BLM public lands, can contribute to the most effective use of an allotment. The EIS addresses only the forage available on BLM and Glen Canyon NRA lands.

31.7

In the soil-vegetation allocation process, blackbrush (*Colo-gyne ramosissima*) was given a proper use factor of 5 percent in the spring for cattle on the Trachyte Allotment. Blackbrush was not given a proper use factor during the winter. According to Bowns (1983), cattle use blackbrush where it occurs in association with other plant species; however, use rapidly decreases where blackbrush occurs in large monotypic stands.



## Response Letter 31

31.7  
(cont)

Bowns (1983) also maintains that, while cattle do readily utilize new spring growth on blackbrush, especially on plants that have been previously grazed, it cannot be regarded as a preferred species.

31.8

Oral Testimony Response 33 discusses adjudication and use of the Little Rockies unallotted area. During the 1964-67 adjudication process, big game AUMs were reserved by use areas rather than by allotments and included the Little Rockies unallotted area (see Figure 1-2). In 1979, a portion of the Little Rockies unallotted area was put on a priority list by UDMR for a proposed bighorn sheep transplant to begin in 1983 (USOI, BLM, 1982a).

## Comment Letter 32



United States Department of the Interior  
NATIONAL PARK SERVICE  
Glen Canyon National Recreation Area  
Box 1507  
Page, Arizona 86040

IN REPLY REFER TO:

13019

February 23, 1983

Memorandum

To: District Manager, Richfield District  
Bureau of Land Management

From: Superintendent, Glen Canyon National Recreation Area

Subject: Comments on Draft Henry Mountain Grazing Environmental Impact Statement

Thank you for the opportunity to review the draft Henry Mountain Grazing Environmental Impact Statement. As you know, about 14% or 265,965 acres of 1,893,272 acres covered by the environmental impact statement (EIS) are Glen Canyon National Recreation Area lands. This encompasses over 21% of the total acreage of the recreation area. Seven allotments (Bullfrog, Robber's Roost, Rockies, Sewing Machine, Waterpocket, Flint Trail and Little Rockies) include an average of 34% of their respective averages on Glen Canyon National Recreation Area. We are very interested in the EIS and have the following concerns about the draft:

1. The Flint Trail Allotment is presently unallotted and is to remain so in the draft EIS. We strongly concur. Conflicts between livestock and hikers in the Orange Cliffs and Maze District of Canyonlands National Park would be reduced.

In February, 1982, Canyonlands National Park and the Utah Department of Wildlife Resources reintroduced desert bighorn sheep into the Maze District. Existing research literature indicates that competition with livestock is eventually detrimental to bighorn sheep. The knowledge that the Elaterite Basin is part of the unallotted Flint Trail allotment was a factor in planning the reintroduction. Temporary emergency use of the allotment may be acceptable. We would require consultation before cattle are allowed in the Elaterite Basin so conflicts can be minimized. There are 4 reservoirs planned for this allotment. Since it is to remain unallotted, we see no need for any water improvements on the allotment.

32.1





## Comment Letter 32

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32.2 2. Land treatments as discussed in the draft EIS (chaining, plogging, reseeded) are unacceptable on Glen Canyon National Recreation Area lands. We understand from communication with your staff that no land treatments are planned for national recreation area lands. We would like this specifically stated in the EIS.

3. We were unable to determine the impacts of the proposed range improvements as it is impossible to determine their locations from the draft EIS. Through communication with your staff, we understand that four improvements were identified for Glen Canyon lands. We cannot comment further on range improvements, until more information on location, need and expected results for each improvement on the recreation area is available.

32.3 4. All alternatives, except alternative A, propose increases in AUMs. Alternatives A and B are expected to have a decline of vegetation because of overutilization. Alternatives C, D and E predict vegetative trend improvements with increased utilization due to increases in forage from land treatments. Since land treatments are unacceptable practices on the recreation area and none were planned by you, increased utilization as proposed in alternatives C, D, E are not justified for the recreation area. We prefer that levels of utilization be no higher than present levels for Glen Canyon National Recreation Area.

32.4 5. Our greatest concern involves the draft EIS as a whole. Except for limited consultation early in the planning process, Glen Canyon was not involved in scoping or preparation of the draft EIS. It does not appear that Glen Canyon lands were considered in the section on affected environment nor in the analysis of environmental consequences. For example, the recreation, visual resource and wilderness components only concern Bureau of Land Management lands. The inventory of recreation sites does not list any National Park Service areas. The analysis does not recognize that recreation occurs within Glen Canyon National Recreation Area. Visual Resource Management classes are only delineated for Bureau of Land Management. Areas of outstanding scenic quality on the national recreation area or adjacent national parks are not recognized. Bureau of Land Management Wilderness Study Areas are identified, however, Glen Canyon natural areas and recommended wilderness areas have been ignored. This is very apparent where a Bureau of Land Management Wilderness Study Area and a Glen Canyon natural area are adjacent. These are only some examples of the draft EIS as a whole. Since only Bureau of Land Management lands were considered as the affected environment, only Bureau of Land Management lands were analyzed for environmental consequences.

32.5 The draft EIS is unacceptable for the National Park Service lands in Glen Canyon National Recreation Area. We cannot endorse a document which purports to analyze the impacts of grazing on an area and totally ignores a major portion of that area, until the draft EIS is revised to reflect an analysis of impacts and their attendant environmental consequences for national recreation area lands we cannot consider it applicable to Glen Canyon National Recreation Area.

## Comment Letter 32

We look forward to working with you and your staff in this project and know that we both want the Henry Mountain Grazing Environmental Impact Study to be the most complete and accurate statement possible.

We recommend two alternatives; one, that the boundary of the area covered by the EIS be redrawn to exclude those lands lying within Glen Canyon National Recreation Area, or that a thorough analysis of impacts and consequences be completed for Glen Canyon lands. If the analysis alternative is chosen, our staff will work closely with the Bureau of Land Management personnel to ensure that applicable National Park Service and Glen Canyon legislative mandates and policy are incorporated.

*John O. Lancaster*  
John O. Lancaster

32.6



# Response Letter 32

# Comment Letter 33

32.1

BLM has consulted with NPS, Glen Canyon NRA on matters concerning grazing management and rangeland improvement projects; coordination efforts with NPS will continue. A Memorandum of Understanding between the Utah State Offices of NPS and BLM specifically outlines livestock grazing management within Glen Canyon NRA (USDI, NPS and BLM, 1973).

Table 2-4 in the Draft EIS was in error; the only rangeland improvements for Flint Trail unallotted area are two reservoirs which are not within Glen Canyon NRA. BLM will consult with NPS on any rangeland improvement projects affecting Glen Canyon NRA.

32.2

A footnote has been added to Table 2-4, Proposed Rangeland Improvements for Alternatives C, D, and E in this Final EIS. The footnote (c) reads: "No land treatments are planned for Glen Canyon NRA."

The only rangeland improvement proposed for Glen Canyon NRA, a 1-mile segment of fence in Rockies Allotment (see Figure 4-1 of this Final EIS) would be on the boundary of the Rockies and Waterpocket Allotments and would also maintain desired livestock distribution of use by preventing livestock from intermingling on these allotments. No other new rangeland improvements are proposed for Glen Canyon NRA lands. The improvements referenced were reservoir reconstructions, which have already been completed in consultation with Glen Canyon NRA personnel.

32.3

Grazing use will be closely monitored by BLM and NPS to determine if increased use could be made without adverse effects on soil and vegetation conditions. Monitoring will occur on all allotments, whether inside or outside Glen Canyon NRA boundaries. If the studies indicate that grazing is detrimental to the range, it will be reduced accordingly. If studies show that grazing use is not adversely affecting the range and NPS cannot identify adverse impacts to other resource values, the new grazing use level will continue.

BLM and NPS must work together to assure that changes in rangeland management in these areas are satisfactory to both parties and are in accordance with their respective resource management responsibilities.

32.4

A BLM staff visit to the Glen Canyon NRA headquarters was conducted to obtain additional information on resources, particularly recreation, wilderness, and visuals, in the Glen Canyon NRA. This information has been added to Chapter 3 in this Final EIS. The analysis of impacts in Chapter 4 has also been expanded to address the consequences of each alternative on resources in Glen Canyon NRA. Data on vegetation, soils, water, and other resources presented in this Final EIS included NRA lands.

32.5

Please refer to Letter Response 32.4

32.6

A representative of BLM made a staff visit to Glen Canyon NRA headquarters to discuss your concerns (Kammerer, 1983). NRA staff personnel provided information to expand the description of the affected environment and the environmental consequences discussions (Chapters 3 and 4 in this Final EIS).



## SIX-COUNTY COMMISSIONERS ORGANIZATION

Sevier County Courthouse, 250 North Main

Richfield, Utah 84701

895-4675

Office of the Executive Director

February 24, 1983

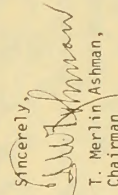
Donald L. Pendleton, District Manager  
Bureau of Land Management  
Richfield, Utah 84701

Dear Mr. Pendleton:

We have reviewed the Henry Mountain Resource Area Draft Environment Impact Study prepared by your staff and appreciate the opportunity to comment and provide you with the position of our Governing Board.

As you are aware, the official position of this organization is the multiple use concept of land use. Under this concept we maintain that livestock permit holders can and will work with your Bureau to insure that overgrazing by livestock does not occur and that to do otherwise would be detrimental to the permittees best interests. In this regard, we have also reviewed the response to your EIS by the Henry Mountain Resource Area Rancher Committee. Since their research raises sufficient legitimate concerns to seriously question the validity of the EIS's proposed reduction in grazing permits and in fact demonstrates that there is no need for a permit reduction, we request that no increases or reduction in preference AUM'S be made until these concerns can be satisfied and that at least five years of additional monitoring has been completed.

Again, we appreciate your providing this organization the opportunity to comment on this issue which is so vital to the economic well being for the citizens of our area.

Sincerely,  
  
T. Merlin Ashman,  
Chairman

TMA:jh

Aging - Alcoholism & Drugs - Community & Natural Resource Planning - Economic Development - Emergency Services  
Human Services - Local Law Enforcement - Employment & Training - Mental Health - Panormiland - Public Health



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Dear Sir,

I am writing this letter to comment on the Hurv Mountain Environmental Impact Statement, if that is what you want to call it. A better name for it is "The Environmentalists' Statement to and for stock grazing on the Hurv Mountain." This is not the best name for it either, because the ranchers are really the true environmentalists, not these college educated idiots that have made these studies.

I run cattle on two allotments, the Bear Point allotment and the Hanksville allotment. Since I run more cattle on the Bear Point allotment, it is the one I will write most about. On Bear Point we have a fence that divides it into two pastures, the east and west. There is no water in the east pasture but when the range was subdivided the S. & M. was supposed to provide water in that pasture. They never did, the only thing they ever put in was a pump at Pason's Wash which never did work, and if you could get it to work, it only provided water at one spot or trough in the pasture. The only other water in the pasture is Little Dip, and it will only water about 40 head of cattle for 2 months. So our cattle have pretty well had to run in the west pasture. Now the pastures are about the same size so we have always assumed that our cattle run on only about half the range.

Now, it is not like anything could be done

2

about developing water on the east side of the range. There are three different springs that could be piped out there and dozens of good sites for reservoirs. We have tried over the years to get the S. & M. to do this, but they have never done anything until last spring, the spring of 1982, they finally built two four reservoirs out there. I know that you are probably wondering why we didn't build some reservoirs or put in some pipeline of our own. Well the reason is this, we have had plenty of feed to handle the cattle we have had on the part of the range where there has been water, and I might add it has handled them well, and we have not hurt the range at all. It looks better today than it ever has before.

Now we have pondered the idea of developing some water out there and since it would open up the other half of our range, asking for an increase in AUM's to pay for the developing. But then we have always gotten to realize the S. & M. would never give anyone an increase. Not only that, the S. & M. was supposed to develop the water, but I guess they don't have to live up to anything they agree to.

Now as to the four reservoirs that were built last spring, three of them have filled full of water over the summer and the other one is half full and so while I am writing this letter to you, there are cattle grazing on Bear Point, where cattle have never been able to graze before. These four ponds have opened up the whole other half of our range, and I might add that these cattle are in grass, that looks better when they lay down. Now since



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3 These ponds have worked like we told the BLM personnel they would, we have been talking among the other permittees and had decided to get in some more and open up more range and ask for an increase in AUM's and then we got hit with this BLM calling for a cut in AUM's. If you can imagine that. A thing like this just makes me wonder where I should turn to, or who I should talk to, or what I should do. I guess this goes to show how far out of line the Government is. I should say the people the Government has working for them is. Anyone who could go out on Deer Point and say there is not enough forage to handle the livestock that is allotted there. Show the wildlife that is there is either not very smart, or else they have never been on Deer Point, or they are creating false information to get rid of the livestock permittees.

I would like to meet the man who would go out with me and stand on Deer Point and have the nerve to tell me that range needed to have the livestock AUM's cut. I guess this goes back to what I have known for a long time, you can take an idiot and have an idiot educate him and you have an educated idiot. I am writing now about the people I think you have had to the BLM. I would like to see a bit of the people that done this and a report on each one telling where they were born and raised. I would dare bet that 90% of them are not even from the Western United States, and those that are, are from the cities and that none of them are from a rural area where people have common sense.

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If I was to give an example of the people you have had do this BLM and was to describe one, I would describe him like this. He would be born and raised in Chicago, Illinois, his dad had plenty of money, probably a doctor, dentist, lawyer or worked for the government. So he is raised in an environment of having plenty of security and money. He would have no idea of what it is like to live in Southern Utah in poverty, ranching, and fighting the wolf, or I should say the coyote or the BLM. From the dawn, day after day. He is not a smart person because he won't listen to his parents and stay in Chicago and follow in his fathers footsteps. He decides he will go to college and then he meets Professor Dought and Dought tells him of the Great American West and of all the endangered species of animals he should save, and how livestock grazing is ruining the natural habitat of the Humpbacked Squirrel, and how coyotes don't eat sheep, and how mountain lion only kill sick deer, and that he can let him educate him and he can get a job for the BLM or the Utah Division of Wildlife Resources. Then he can come to Utah and do studies that will save all these endangered species, and restore all the natural habitat of Squirrels, and get back in touch with nature and become a "Friend of the Earth." Now in Chicago it rains all over all the ground wherever he has seen it has had luck, from law on it and when he gets here to Southern Utah he sees what Professor Dought has told him of all of these dried land, that isn't lush and green because it has been overgrazed by all of



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these stupid people that have lived here all of their lives. So if he can get all these cattle off these ranges they will become lush meadows and coyotes and lions will live in harmony with deer and all other wild life. In other words he will have the lion lay down by the lamb. One thing he forgot is the lambs are practically gone off of these western ranges because he hasn't told all the coyotes that they are supposed to lay down by the lambs, not eat the lambs. But that is alright with him because it is the sheep and cattle that have been on these ranges that have depleted them to the point that the deer herds can't survive on them. Now he knows for a fact that coyotes want harm deer because he has done some studies on them. He has put collars on deer's necks so he can keep track of them to see if predators harm them and they don't. Some dumb ranchers tell him that these collars would scare a coyote or lion to death and that's the reason they haven't killed the deer, but he knows how stupid they are, they have lived here in this area all of their lives and spent years on the range and never had enough sense to know that all these sheep, deer and calves were starving to death, not being killed by coyotes and lions.

This is the example of the type of personnel that have done this study, in my opinion, and I think they run the whole government. I think this E.S.L. study is just a small example of how far ~~the~~ gone this country really is. This man I have just described is the trouble with the whole western United States, he is not only running the SLM but the forest service, the fish and game, the state and

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national parks and all other forms of Government. He is an educated idiot with no common sense at all.

One example to verify this is on page 88 of this E.S.L. it says that male deer members on the Henry Mountains have been at a low statistic condition for the past 15 years. It goes on to say that they are not having enough fawns because of the lack of protein in some parts that grow on their summer range. They say that livestock grazing has taken all the plants with the good protein and the deer are left out. Well if that is the case how come in the 1930's when livestock grazing was much greater, there was a huge herd of mule deer on this range. I can tell you why, and my rancher will tell you it was because the coyotes and lions were controlled, and until you control the coyote and lion or have these educated idiots educate all of them, so they won't eat these animals, you won't have any deer or sheep or much of anything else on these ranges.

I have had bound edge all my life and I have chased a lot of mountain lions and you cannot follow one of them for a day without it killing a deer I have been out on fresh ends and followed coyotes that have killed full grown deer. It is not a pretty sight. They just run them down and start eating them alive. If you have ever followed them when they are after a deer you will start seeing their hair, then blood, then parts of their insides then all of their insides, then in about another 3 or 4 hundred yards what is left of the deer.

One other thing I would like to know is how



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much money does it cost to do a worthless study like this E.S.S., and how much money does it cost us the people of this government, to live idiots like these to try to bring down the livelihood of all the ranchers in the Western United States. These ranchers that are left are the very basis that the whole economy of the West is founded on. So if you let these idiots break us all, which they are about to do, then we are in for some sad times ahead.

In Southern Utah about 50% of the people are self-employed, farming or ranching, as in business dealing with agriculture. The other 50% work for the government, the E.S.M., the Forest Service, the National Parks, the State Parks, the Division of Wildlife Resources, the State Roads, the County roads, the Soil Conservation, the County Government, the U.S. Mail, a few construction companies which get their money from the government to build for fix roads and work on public lands, and the schools, where if children stay in them long enough, they could come out educated idiots. But mostly these children have too much common sense to be able to stay in school until they reach college and listen to people like Bygones brought, who tries to fill them full of propaganda or the common name for it "Bullshit". If we have to keep letting these educated idiots run us and spend all this money on these worthless studies and they go ahead and out NWAs and eventually break us, who are going to pick up the tab on all of this government.

I don't think that the people we elected to represent us in government ever intended for these

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government agencies to get so powerful and so worthless, and never tries to answer to anyone. I think they were set up to help the rancher not to destroy him. I don't see how any nation or any person can survive when we are constantly fighting a kind of parasites like we have created in all these agencies. All these people that work for these agencies have nothing to do but constantly keep throwing wrenches into the way wheels of the industry that feeds them. The people involved in agriculture are busy people out working every day trying to survive. They don't have time every day to be arguing and fighting with these educated idiots to survive. You want to remember when the cow dies so do the parasites that feed on her, so I guess when we all go under some good will come out of it.

Another thing the E.S.M. doesn't do, but this goes along with what I have already told you, is that they never get the opinion of the permittees or the local people on anything. Take for instance the E.S.S., there are permittees who have been on these ranges for as many as 60 years. They have fought more about these ranges than these idiots that clone this study will ever learn. Not one of them had a chance to voice his opinion or recommend anything in this E.S.S. Now that it is all written up and we get to send our comments on this Environmental Statement to end praying, I seriously doubt if our letters will ever be read.

I wonder what the E.S.M. people think their job is? They have gotten out of line somewhere, instead of fixing all of those stupid idiots to do

34.3



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these stupid studies, they should hire men that would go out on these ranges and work with the permittees, men with common sense that still know how to work, then we could start to improve the range by reseedling and developing water. There are hundreds of things men could do to improve these ranges. Not only would it benefit the livestock but the wildlife. And the whole economy would benefit from it. The way it is now in each one of your offices around here, you have from 10 to 30 people hired and if there there is not over 1 or 2 of them that even know how to work. If they do anything it would be to go out and spend days trying to catch someone a day late moving live cattle so they can get him for trespassing.

To get one pond built it takes 10 years of studies, 30 BLM people running around in 30 different pickups, 30 secretaries and 50 educated idiots doing studies. Then they hire a contractor to build the pond. It should be one man and one Government interpreter. He should come out and do the job or else you should let the permittees do it and when they increase the water and the forage, give them an increase on AUMs instead of always a decrease.

If we as permittees could get any benefit from it, we could improve the range 100%. We would be willing to put a lot of time and money into these ranges if we could ever get the BLM to just leave us alone, and give us one day of peace without trying to cut our permits every time we turn around.

Now I am going to tell you this and suggest it to

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our two Senators and our Congressman from Utah, that I propose to have an Environmental Impact Statement done on the BLM. I would like to see studies determining how much affect the BLM has had on the people of Southern Utah. I would like to see a list of how many ranchers they have broke or harassed until they have quit. I would like to see studies show on all the thousands of your employees to see what it costs the taxpayers to keep each one of these people, so they can keep on harassing ranchers. I would like to have these people analyzed under cover, for a few days each, to see how much actual work they really do. I would like to know how much it costs to keep all these people in new buildings, new pickups, equipment and secretaries. I would like to know how much actual money gets spent on range improvements. I would like to see how much it costs to keep these educated idiots doing all of these worthless studies. If the BLM ever does lay anyone off, it is the persons that do something good like the common ranching man who has got common sense. They lay off the man who would go out on the range and do some work, and some good while they keep these educated idiots on the payroll.

I think that if we can get these studies done on the BLM, we will find that it is the BLM personnel that needs to be cut not the grazing AUMs. If we could get the BLM personnel cut by 75% and put the money that it costs to keep these people in the manner they have been kept, into actual range improvements, then we could see some



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there. My ancestors were among the first to come to Indian Creek, as you will find most permittees were, and they made their living off this land, and we should have the right to do the same, without these idiots from back East trying to run us off this land. I think it is time the S.L.M. takes its rightful place and starts working with the permittees instead of always against them.

34.4

To sum it all up, the S.L.M., which has run these ranges for years are not putting the money that they are supposed to, into these ranges. Instead they are spending it on their people. Now they are trying to blame the permittee for the ranges being the way they are, when the S.L.M. should stand the whole blame.

The range thought are adequate for the number of livestock and wildlife that are there now, but what should happen is the S.L.M. and the permittees should work together and improve the ranges and the water for more livestock and wildlife. The permittee had a committee go over this S.L.M. and they found several things that were wrong or had been done wrong. One is unaltered areas in the Henry Mountain area, these areas should be allotted back to the permittees in the adjoining allotments. There are several other points but I don't comment on them. I feel like I have spent enough time telling you about the real problem that exists in public rangeland. As for the Deer Point allotment, these four permits have spent up the other half of the range to livestock and wildlife so we don't need any cut in ATMs, all

34.5

11.

mighty big improvements on the ranges. Then instead of the money being spent for idiots to do studies, and people to do nothing, it would be spent on the ranges where it should be. If we could even get rid of 75% of these people and get them off our backs and let the Government buy its money or give it to these people to stay home so they wouldn't be out running out gasoline and wearing out trucks, we the permittees could then go ahead and improve the ranges and we would improve them.

If you want to see proof of how we would improve them just take a look at how much forage we produce on our private ground. Private range where the rancher ran second and develop water and run his livestock on it the way he sees fit produces 10 times the forage for cattle and wildlife. I ought add on the S.L.M. administered land does. If we the permittees could succeed, develop water and run on livestock on the S.L.M. without having to worry about our ATMs being cut for even 10 years, we could show more improvement on these ranges than the S.L.M. have in all the years they have been in complete control.

After all who could take better care of these ranges than the permittees who have to make their living from them, and there is nobody who loves these ranges more than we, the permittees. We were born and raised on them. I know I think more of Deer Point than any S.L.M. person does. I have to spend many days on this range with my cattle and I love it. And I have the right to be



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13. *We need a few more ponds on Burr Point and some common sense.*

*Sincerely,  
Stanton Jefferson  
Burr Point*

34.1

On Burr Point Allotment the grazing capacity estimates, based on the most recent soil-vegetation inventory, show 1,091 AUMs of forage available for cattle and 1,174 AUMs for sheep. Average licensed use for livestock is 1,691 AUMs for cattle, with no use by sheep. Rangeland condition and trend and utilization studies, along with actual use records, estimate a total of 2,481 AUMs available for livestock.

The forage production potential of this allotment is good, providing the needed rangeland improvements can be made. Alternatives C, D, and E propose installment of the following water developments: one new spring, two reconstructed reservoirs, three new reservoirs, 10 miles of pipeline, two wells, and eight troughs. This would provide for better livestock distribution which, in turn, would utilize the full forage production of the allotment.

Rangeland improvements are dependent upon Congressional appropriations and participation by permittees in installation and maintenance.

Please refer to Letter Response 17.11.

34.2

Recommendations from interested and responsible parties are welcome throughout the EIS process. The scoping process and the comment period for the Draft EIS are designed specifically to identify and analyze issues of high public concern.

There has been a 121-day public comment period on the Draft Henry Mountain Grazing EIS; in addition, one public hearing was held in Loa, Utah on December 1, 1981. Sixty-one letters, with over 400 comments and responses, are included in this Final EIS. Also, permittees in the planning area formed a committee and submitted their own proposals. Comments have resulted in changes in this Final EIS and will affect the implementation of the grazing management program for the planning area.

34.3

34.4

BLM and its' predecessor, the Taylor Grazing Board, have been managing grazing on public lands since 1934. Initially, permittees were given a preference based on base property or water qualifications. The number of livestock each permittee was allowed to graze on public lands under their preference was based on need (Taylor Grazing Act [1934] and Society for Range Management [1981]). Permittees tended to inflate their need and, because BLM honored permittees' requests, many rangelands have been overgrazed, and the production potential of some areas has been lost because of resulting soil erosion.

Since then, BLM has, in cooperation with other agencies and permittees, with limited funds, tried to improve the rangeland by improving livestock management, installing water developments, fences, chaining, and seedings, etc. In many areas, however, grazing use continues to exceed forage production and rangeland condition and potential continues to decline.



34.5

The unallotted areas are Dry Lakes, Flint Trail, Little Rock-ies, and North and South Caineville Mesas. UDR purchased the grazing privileges in the Dry Lakes unallotted area for use by big game. Flint Trail has some limiting factors such as outcrops of slickrock, steep slopes, and canyons. This area is presently used by big game and is available for use by livestock on an emergency basis. For a discussion on the Little Rockies unallotted area, refer to Oral Testimony Response 33 and Letter Response 31.8. North and South Caineville Mesas are managed as ACECs (see Glossary).



COOPERATIVE EXTENSION SERVICE  
UTAH STATE UNIVERSITY  
LMC 49  
LOGAN, UTAH 84322

Utah State University and the U. S.  
Department of Agriculture Cooperating

February 22, 1983

Comments on Draft Henry Mountain Grazing Environmental  
Impact Statement (DHMGIS)

prepared by

Dr. Paul F. McCawley  
Extension Range Management Specialist for Public Lands

The Henry Mountain GEIS is a well organized and relatively thorough acknowledgement of the impacts of livestock grazing on the planning unit. Despite the vast improvement over previous statements, the document contains many misstatements and speculative predictions that cannot be supported by the data. These deficiencies should be rectified before the final document is prepared.

The soil-vegetation inventory method (SVIM) has been an objectionable procedure of forage allocation since the first EISs were prepared according to the method. The Bureau had discouraged the exclusive use of SVIM for the purposes of forage allocation prior to the release of the DHMGIS. Nonetheless, the Henry Mountain draft relies heavily on the SVIM data for the determination of AUMs available under the various alternatives presented. A few of the problems encountered by the Richfield staff are presented in the Staff Report (p. 130-133) and a variety of other potential shortcomings are outlined in a Position Statement included with this review. Because of these limitations, all tables and figures contained in the EIS that were derived from SVIM data should be clearly labelled as such, and qualified as to the utility of the data.

35.1

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Designation of Alternative A as the "proposed action" and Alternative E as the "preferred alternative" is confusing and inappropriate (p. 4, 15, 25). Alternative A would be better referred to as the "Actual Use" alternative, rather than "No change" (p. 4, 15).

Environmental Consequences, vegetation (p. 4, Alternative A). There is inadequate data to support the statement "forage production and range condition will be adversely affected by continuing the present level of stocking on 18 percent of the area". It would be more precise to implicate the "present level of livestock management" rather than stocking rate, however, data will likely not support that contention either.

Table 3-3 indicates that 82 percent of the range resource is stable or improving in condition under the present management. This figure should be included in the discussion on page 4.

The consequences summarized for Alternative B are purely speculative and are derived entirely from SVIM. There is no information available that

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35.5  
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allows the preparers to assign percentages to the amount of range deterioration that would be caused if stocking were increased to preference. Changes in animal distribution, feeding habits and relative species palatability that would necessarily accompany such a stock increase were ignored.

35.6

In order to optimize livestock production (Alternative D) significant changes in management need to be incorporated into the alternative. Under more intensive management it is incorrect to assume that forage conditions would "continue to deteriorate" or any of the allotments. It is unlikely that the number of AUMs determined through SVM would approximate the amount of forage that may become available under more intensive management.

35.7

Because of the differences in utilization patterns, season of use and grazing behavior, and because there are outside constraints on livestock producers, it is unnecessary to remove all bison in order to optimize livestock production.

35.8

Soil and Water Resources. There is a limited amount of data available that implicates moderately heavy grazing as causing soil instability. However, widespread extrapolation of these data is dangerous. Such application requires input of soil porosity and infiltration rates, slope, intensity and duration of rainfall events, speed of runoff with various amounts of vegetative cover, degree of water channeling and a host of other information. It is presumptuous to state that erosion and sediment yield would change under any of the proposed alternatives. Range condition, as determined by SVM, is a measure of species composition--a variable that may have no influence on ground cover or on watershed stability. Soil-surface factors are not trend studies and cannot be used as predictive tools.

35.9

Animal Life. It would be useful if the document were to outline the long-range management goals for the bison herd (according to UDMR). What percentage change in herd size is expected?

35.10

Recreation. "Improvements in wildlife habitat under Alternatives C and E would improve hunting for big game". It appears that most of the improvements suggested for C and E are also suggested for Alternative D, thus hunting should be affected similarly. If there is evidence that limited habitat is causing the low cycle in game populations, it should be cited. The proposed treatments should be directed toward improving the range that is limiting, after the limiting habitat factor has been accurately determined.

35.11

Purpose and Need (p. 7). The final paragraph in this section should be omitted. Without statistically reliable monitoring studies there is insufficient data to conclude that allotment-wide forage production is less than forage demand. In most cases, areas of heavy-use could be eliminated or reduced with amended grazing management.

35.12

Table 1-2 (p. 9). All allotments that support bison for all or part of the year should be classified in the "I" category to reflect existing use conflicts and management problems.

2

Comment Letter 35

35.13

Table 3-3 (p. 43). There need to be monitoring studies on unallotted areas for comparison. This is especially critical on Dry Lakes because of the high level of bison use, and on Little Rockies that supports only a small number of large herbivores.

35.14

A re-evaluation of the column "studies support inventory" is called for. For example, Burr Point Allotment: inventory suggests that average use exceeds forage available for cattle (1337 and 1091 AUMs, respectively) but studies show that the entire allotment is stable or improving in condition.

35.15

Forage use based on studies. The only methodology recognized that will provide this information based on vegetative data uses paired-plots (caged and uncaged) that are clipped and relocated several times each season. The number of cages required per allotment exceeds the number of caged plots in the entire District.

35.16

Because the allocation model distinguishes between sheep and cattle AUMs, the columns "percent change from preference" and "percent change from licensed use" should also be expressed for cattle and sheep, individually.

35.17

Animal Life (p. 49). The term "Habitat Condition" should imply a single-use objective relative to community types and the relative abundance and interspersions of food, cover and other habitat requirements for designated wildlife species. This usage is not consistent with multiple-use directives. If the term is used to describe condition for wildlife, then some term other than "range condition" (based on forage production, palatability and accessibility) should be substituted to depict the range's livestock capability. If the term "habitat condition" is not intended for single-use interpretation, rather it is intended to describe the ecological status of the vegetation, then it is interchangeable with "range condition" in this report, and both terms should be replaced by the term "ecological condition".

35.18

Socioeconomics (pp. 75-77, 111). It seems unlikely that the average permittee in the HMRA is losing money at the rate of 25 to 50 percent of his gross income. If this is true, then it is critical that reductions in permit value be included in the analysis. The capital value of the costs of permit reductions must be used to analyze the net impacts of Alternatives A, C, D and E. Otherwise, the inputs into the economic evaluation "Interest on Capital Investment" and "Interest on Land Investment" (Appendix 3) are invalid for all comparisons.

35.19

From the analysis on pages 75-77, it appears that the more cattle a rancher owns, the more money he loses. Table 4-19 indicates that increased stocking will improve net income. This is a contradiction that should be resolved. It is curious that every alternative will increase net income, regardless of whether stocking rates are increased or decreased.

35.20

Vegetation (p. 80, second paragraph). This is an overstatement of the value of the available data. Impacts from alternative levels of use can only be speculative, not identifiable. Determination of ecological

3



35.20  
(cont)

condition from SVIM procedures do not address management objectives. Ten years of trend data are not consistently available. Trend plots represent only 0.0000385 percent of the total area concerned and there is no confidence that the plots are representative of a larger area than was actually measured. Utilization studies measured for a single year are useless for long-term management decisions.

35.21

Page 80, fourth paragraph. The statement that "annual utilization greater than 50 percent weakens and eventually destroys native rangeland plants" requires qualification. This should be apparent by the upward trend expressed by browse on the "Oak plots" (Blue bench, p. 126) following 70 percent utilization of the key species. The seasons and durations of use periods will affect this rule of thumb greatly, as will species composition and the relative palatability of the key species, weather patterns, soil conditions, and a host of other variables.

35.22

Table 4-1 (p. 81). Because the use of SVIM data has been disallowed for forage allocations, this table should be omitted.

35.23

Appendix 2 (pp. 141-142). The "utilization formula" (adopted from Schautz) should not be used to adjust stocking rates unless the entire area is well sampled (utilization) and the grazing pattern shows even overutilization. It should be recognized that this method will reduce utilization on the least-visited areas first, but will not impact use on areas of heavy animal concentration. The impacts of stock reductions on utilization patterns can only be predicted if information on season of use, intensity of management, grazing behavior, pattern of plant community occurrence, water availability, salting activities (herding, drift fences or natural barriers), kind and class of livestock, and other data are used in the assessment.

This critique of the dHMGES is thoughtfully submitted to the Richfield District Manager to illustrate some of the shortcomings of the technical base and ecological reasoning on which the document is founded. I hope that these comments will precipitate a re-examination of the document leading to some major revisions before the final EIS is released. Thank you for this opportunity for input and I look forward to our continued cooperation.

Encl.

cc: Roland Robison  
Billie Templeton

35.1

The tables based on the soil-vegetation inventory have been documented in this Final EIS (Tables 2-2, 2-3, 4-1, 4-3, 4-4, 4-5, 4-6, 4-7, 4-8, and 4-9). Also, please refer to the Vegetation section, Chapter 4 in this Final EIS which states: "Reviewers of this EIS should, however, recognize the limitations of vegetation inventory data. While this data is adequate for purposes of planning and analysis, it must be supported by the results of monitoring studies before making forage allocation decisions."

35.2

Please refer to Appendix 5 in this Final EIS.

35.3

The limitations of the soil-vegetation inventory have been acknowledged in this EIS; please refer to the first paragraph in the Vegetation section of Chapter 4.

In cases where monitoring studies are supported by the soil-vegetation inventory, BLM has a sound bases on which to make adjustments in grazing use. There are no other existing range forage production condition or trend data to dispute the conclusions drawn from BLM's mutually supporting monitoring studies and soil-vegetation inventory.

It is agreed that, in many instances, livestock management and not the level of stocking is the main factor affecting forage production and rangeland condition.

35.4

The information presented in the Summary is merely an abridgement of the more detailed impact analysis found in Chapter 4. For more detail, see Table 3-3, Chapter 4, Vegetation section, and Appendix 2, Table 1 in this Final EIS. The 32 percent referenced in Table 3-3 contains some rangeland in poor condition even though overall trend is stable. It is expected that those allotments in stable or improving condition would remain in those categories if present management were continued.

35.5

Refer to Letter Response 35.3; in addition, feeding habits and relative species' palatability were specifically addressed in the soil-vegetation inventory process (see Appendix 3 in this Final EIS). The diets in the tables of this appendix were compiled by plant species and were based on diet, forage palatability, and competition. Data specific to each site write-up area in each allotment are available for review in the Richfield District Office.

35.6

BLM has reviewed the statements under Alternative D in the Draft EIS and believes they should remain as written. The EIS analyzed these alternatives from the standpoint of short-term response which assumes that management would remain essentially the same for the next 5-20 years. Under these circumstances, a substantive increase could not be expected to vegetation productivity, especially on key areas.

In the long term (20 or more years), if more intensive management were implemented, the productive level of the range could be expected to improve. These assumptions are based on long-term research findings and experience on arid ranges. Please refer to Range Potential section in Chapter 3 for a brief discussion and references cited.



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- 35.7** Please refer to Letter Response 30.6.
- 35.8** Analyses of impacts to soil and water resources were based on the effects each alternative had on vegetation (see Vegetation section, Chapter 4 in this Final EIS). Grazing or other activities which reduce vegetative cover leave the soil susceptible to increased erosion from impacts of falling raindrops, flowing water, and wind.  
BLM concurs that, because of such variables as you mentioned, any quantification of soil loss would not be possible with available data. However, the Badger Wash Study (Lusby, 1970), which was conducted on an area with characteristics similar to part of the Henry Mountain Planning Area, indicates that continuous overgrazing increases sediment yield.  
SSFs, if used in a monitoring program, can help determine erosion trends.
- 35.9** UDMR's long-range management goals for the bison herd, in terms of AUM requirements on crucial summer, winter, and year-long range, are shown for each alternative in Figure 4-3 in this Final EIS. Current herd size is approximately 45, 40, and 36 percent of UDMR's long-range goals for crucial summer, year-long, and winter ranges, respectively.
- 35.10** The improvements proposed under Alternatives C, D, and E are very considerably among alternatives. Under Alternative D, the potential benefit to big game from improvements would be negated by the increased competition from sheep and cattle.  
As indicated in the Animal Life sections in Chapters 3 and 4, summer range (forage) is a limiting factor for mule deer. Under Alternative C, benefits from land treatments would largely (80 percent of the increase in AUMs) go to big game. Conversely, under Alternative D, only 5 percent of the increase in AUMs would go to big game. Under this alternative, livestock would receive 92 percent of total available forage, while big game would receive 8 percent. Under Alternative E, AUMs resulting from land treatment would give 19 percent to big game and 81 percent to livestock.
- 35.11** Please refer to Letter Response 35.3. Based on this analysis, BLM has reviewed the last paragraph of the Purpose and Need section (Chapter 1) and believes that this paragraph should remain as written.
- 35.12** Refer to Oral Testimony Response 1.
- 35.13** BLM agrees; monitoring studies will be established on unallotted areas during implementation of the grazing management program.
- 35.14** Of the five trend study plots on Burr Point (see Table 1, Appendix 3 in this Final EIS), two are up and one is static on fair condition range, while two are static on poor condition range. In other words, 40 percent of the sample is not improving on range that is in less than satisfactory condition.

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- 35.15** Please refer to Appendix 3 of this Final EIS for an explanation and example of how grazing use levels (forage use), based on studies, was calculated. Procedures were completed as per BLM Manual 4413 and are considered only estimations of grazing capacity.  
Also, refer to Letter Response 31.2.
- 35.16** The data you requested have been added to Table 3-3.
- 35.17** The term habitat condition has been replaced by ecological condition in this Final EIS.
- 35.18** Reductions in permit values have been acknowledged and quantified for all alternatives in the Socioeconomic sections of Chapter 4 (Tables 4-18, 4-19, 4-21, 4-23, and 4-25).  
The ranch budgets (see Appendix 4) used in this EIS were taken from a Master's Thesis submitted at Utah State University by Mr. Kib Jacobson (see Jacobson, 1981 References Cited section in this Final EIS). The source document contains a detailed background on the inputs into the budget.
- 35.19** The data presented on Pages 75-77 of the Draft EIS are a description rather than an analysis; your conclusion that the more cattle a permittee has, the more money he loses is an oversimplification of the data presented. It should be noted that the "Net Ranch Income" figures shown in Table 3-14 increase as animal numbers increase, as do the "Net Ranch Income" figures in Table 4-19.  
It was assumed in this EIS (based on existing regulations), that permittees would use all forage allotted to them (see Oral Testimony Response 32).
- 35.20** Regarding the determination of ecological condition, please refer to Letter Response 35.3. Oral Testimony Response 28 discusses the adequacy of present data; the second paragraph of Oral Testimony Response 16 and Oral Testimony Response 49 discuss trend study plots.
- 35.21** Table 1, Appendix 3 of this Final EIS, indicates that 70 percent utilization of key browse species occurred prior to 1975 (footnote b). Overall trend of key browse species over the 11-year sample period has been up; however, as testified to by permittees, livestock use was much lower than average from 1977 to 1980. This accounts, in part, for the upward trend of browse on the "Oak" trend study plot.  
BLM does concur that utilization, its measurement, and its effect on individual species are complex and difficult to evaluate. However, most literature states that "close" utilization (generally greater than 50 or 60 percent) on a sustained basis during critical growth and reproduction periods is harmful to most range plants. From a review of available literature, Ellison (1960) concluded that the usual effect of grazing certain species in a community handicaps those species while encouraging growth of less desirable plants. Therefore, the effect of selective grazing is usually a reduction in the relative amount of palatable species. Such changes



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35.21  
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are roughly proportional to grazing intensity, being most pronounced under severe overutilization.  
Observations suggest that some forage plants respond as well to light grazing as to no grazing. However, other studies show injurious effects on vegetation even at light grazing levels (Johnson, 1956).

35.22

Refer to Letter Response 35.3.

35.23

Appendix 3 is included to illustrate the "utilization formula" method (BLM Manual 4413.3) and to compare the data provided by the soil-vegetation inventory data. The limitations of available data are recognized.

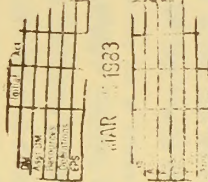
## Comment Letter 36



### STATE OF UTAH OFFICE OF THE STATE PLANNING COORDINATOR

SCOTT MATHIESON,  
GOVERNOR

MARTHE DYNER  
STATE PLANNING COORDINATOR



February 28, 1983

Mr. Donald L. Pendleton, District Manager  
Richfield District Office  
Bureau of Land Management  
150 East 900 South  
Richfield, Utah 84701

Dear Mr. Pendleton:

Subject: Henry Mountain Grazing Draft EIS  
State Application Identifier #UT821026-010

The Resource Development Coordinating Committee of the State of Utah has reviewed this proposed action. Attached are comments for your review reflecting input from the Department of Natural Resources, Division of Wildlife Resources, Division of State Lands and Forestry and Department of Agriculture.

The State of Utah supports the preferred BLM alternative with certain reservations and modifications as per the attached comments.

Thank you for the opportunity to review and comment on this document. Please address any questions regarding this correspondence to Mr. Milo Barney (801)533-5356.

Sincerely,

*Marthe F. Dynet*  
Marthe F. Dynet  
State Planning Coordinator

attachments  
FHW/CW



February 25, 1983

STATE OF UTAH COMMENTS  
DRAFT HENRY MOUNTAIN ENVIRONMENTAL IMPACT STATEMENT

We have reviewed the Draft Henry Mountain Grazing Environmental Impact Statement and support Alternative E as representing a fairly equitable allocation of the various resources with the following comments and recommendations:

36.1

There appears to be some inconsistency, or at least misunderstanding between the stated ecological condition of the rangeland within the Henry Mountain area and the effect of the proposed allocation of AUM's under Alternative E as shown on Pages 2 and 3. On Page 41 it indicates that 79 percent of the rangelands are in early or mid ecological condition. On Page 86 it states "Under Alternative C, D, and E, trend in ecological condition would remain static or go up slightly in the short term. While short-term overutilization would occur in localized areas, this would not cause any detectable adverse impacts. In the long term, a corresponding increase in ground cover, improved vigor in key forage plants, and an increase in the percent composition of the more desirable plant species would occur."

If 79 percent of the rangeland is in early seral stages and the proposal is to significantly increase AUM allocations (23,856 for livestock and 7,858 for wildlife) from current use with the exception of bison and burros, how can ecological condition remain static or go up in the short term and improve in the long term? We assume these increases in AUM's for both livestock and wildlife would not occur until the management practices discussed in the document, including the proposed range improvement projects, were completed. If this is the case, it is not clearly stated in the document. Even if this is the case, the anticipated AUM increase from proposed range improvements

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(Table 2-4, Page 24) of 2,995 AUM's does not equal the proposed AUM increase under Alternative E for both livestock and wildlife. Thus, as indicated on Page 86, it does not appear that if the proposed increases are made, an increase in ecological condition is possible, even in the long term, when reviewing it in light of the present condition, which places 79 percent in mid or early ecological classes and 68 percent of the area in either stable or declining trend as indicated on Page 41. This points to the importance of monitoring to establish grazing capacities. We support the proposed monitoring and recommend that it be done in cooperation with the ranchers, the Division of State Lands and Forestry, and the Division of Wildlife Resources.

36.2

It is assumed, although not specifically identified in the Environmental Impact Statement, that the AUM's available have been adjusted for suitability relative to slope and distance from water. It is our understanding that areas greater in distance than four miles from water were deemed unsuitable for bison and livestock, and areas having slopes greater than 50 percent or 75 percent were considered unsuitable for livestock or bison respectively.

It is our experience that bison will frequently utilize range in excess of four miles from water. It is also our opinion that bison utilize range on slopes that do exceed 75 percent; other bison experts in the West confirm our experience with the bison in the Henry Mountain Area. It appears that the amount of rangeland available for bison use could be expanded by not strictly adhering to the four-mile limit or the 75 percent slope criteria. Therefore, more AUM's would be available for the bison without affecting allocations to livestock; and the proposed reduction identified on Pages 2 and 3 would not be necessary.



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36.2  
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We do, however, recognize that there are localized areas where there is overuse by both the bison and livestock, and that these areas need to be specifically identified and solutions found to the problems. It is recommended that the Bureau of Land Management, in cooperation with the Division of Wildlife Resources, the Division of State Lands and Forestry, and the livestock operators, initiate a land treatment program that would help to alleviate and perhaps eliminate the problem areas where there is localized overgrazing by both bison and livestock.

The following are our specific comments and recommendations:

36.3

Page 2, Table 1 - There appears to be a conflict between the current use AUM's for bison as shown on Table 1, Page 2, with that shown in Table 2-2, Page 21.

36.4

Pages 4 and 5 - On Page 5 under "Livestock Grazing," it indicates that overgrazing violates regulations in the BLM Manual, 43CFR/4110. This appears to be in conflict with the objective as stated on Page 1 and the statement on Page 4 under "Vegetation" where it states that under the preferred alternative, localized overutilization would continue on portions of six allotments because of the period or pattern of use or distribution of livestock and bison.

36.5

Page 13 - Under "Interrelationships with Other Agencies, Groups, and Individuals," it states "BLM-administered land in the Henry Mountain Resource Area are interspersed with private- and state-owned lands. . . ." This land ownership pattern makes close cooperation necessary between land management agencies and private land owners to accomplish common goals and avoid resource use conflicts." Then Table 1-3 identifies the interrelationships between the BLM and other groups and governmental agencies. The Division of State Lands

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and Forestry should be added to this Table since approximately 9 percent of the land in the Henry Mountain area is administered by this Division. Also, in Table 1-3, we believe the section describing the Division of Wildlife Resources' responsibilities is oversimplified and needs to be revised to indicate that the State Division of Wildlife Resources has total management responsibility for the wildlife in the area.

36.6

Page 15, Alternative B - We believe the suggestion that antelope and bighorn sheep would be removed is inappropriate since the populations of both species within the resource area reflect relics of indigenous populations.

36.7

Pages 17 through 21, Table 2-2 - Either within the tables or within the narrative, information should be presented as to which forage data had been adjusted for suitability. Also, how slope and distance from water were utilized in suitability determinations for livestock as well as big game should also be outlined. It would be particularly helpful for analysis purposes if it were shown by allotment how much was judged suitable and unsuitable for livestock and/or big game use.

36.8

Page 25, Alternative C - More explanation is needed as to why livestock use increases by 13,173 AUM's and wildlife by only 9,719 AUM's under an alternative with the goal of optimizing big game production on public lands.

36.9

Although the Division of Wildlife Resources has discussed and agreed to transplant beaver into Bull Creek, no discussion has been entertained or agreed upon to transplant into other drainages originating on Mount Ellen that are not tributary to Bull Creek. There are no plans at this time to transplant beaver into Bullfrog Creek.

36.10

Page 25, Alternative D - There are some concerns that of all the wildlife species only bison are discussed for removal under this alternative.



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36.11

Page 27, Grazing Administration Practices - We recognize the importance of monitoring in the implementation of the proposed rangeland program. Thus, we commend BLM for recognizing that the permittees need to play an active part in the monitoring program. We also recommend that the Division of Wildlife Resources and the Division of State Lands and Forestry be involved in the development and implementation of the monitoring programs.

36.12

Page 28, Item 12 - Riparian areas are briefly discussed here, but we believe generally the Environmental Impact Statement is lacking necessary discussion of riparian areas. This habitat type is of critical value to not only wildlife species, but to livestock also. At some point in the planning process, all of the riparian areas need to be identified, evaluated, and management plans developed for these areas. This fact is borne out by the statements on Page 37, where it indicates that only limited data is available on the 67 unsurveyed streams.

36.13

Page 37, Ecological Condition - Sometimes equating ecological condition to range condition, as appears to be implied in this section, can be misleading and confusing. For example, it identifies 79 percent of the lands inventoried as being in either early or mid seral stages. Sometimes climax is not the most desirable stage for wildlife, livestock, or watershed purposes, and it would be preferable to hold a given site at some lower seral stage. This may be particularly true for pinyon-juniper sites where the climax stage may be a closed stand of pinyon-juniper with relatively little understory, thus providing little forage for either livestock or most wildlife species. The site may also be in a poorer watershed condition than some earlier seral stage in the ecological successional chain. Therefore, it would be helpful to have a discussion that would explain the relationship between ecological

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condition and range condition since not in all situations would climax ecological condition equate to a high range condition class for livestock and big game.

36.14

Pages 43 to 44, Table 3-3 - It would be helpful if the number of years for which trend data is available was included in this table or in the narrative on Page 41.

36.15

Page 54, Desert Bighorn Sheep - In addition to lambing and rutting grounds, water-scarce areas during nonsnow cover periods are also considered to be critical habitat for bighorn as well as other big game species.

36.16

Pages 62 to 66 - Information presented on wilderness and grazing is inconsistent with Wilderness Study Area site specific analyses.

36.17

Page 66, Undeveloped/Dispersed Recreation Sites - Bison have been hunted on the Henry Mountains since 1950. The EIS might cause the reviewer to believe that they have only been hunted in the last three years.

36.18

Page 75, Socioeconomics - It indicates that livestock and livestock products account for 85 percent of the total agricultural projects sold in the three county area of Sevier, Wayne, and Garfield Counties. This points out the value of the livestock industry to the economy of this area. The sales from big game hunting is also important to the economy. Thus, we suggest that rangeland improvements be made to enhance the range for both livestock and wildlife.

36.19

Page 80, Air Quality - Since prescribed burning is one of the range improvement practices discussed for possible use in the Henry Mountain area, there may be a possible problem with the air quality in the adjacent Class I area of Capitol Reef National Park under certain conditions.



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7

Page 80, Vegetation - We strongly agree with the statement in the last two sentences of the first paragraph. This statement indicates that the inventory data may be adequate for planning and analysis purposes, but it must be supported by monitoring studies before making forage allocation decisions. This also reaffirms our earlier statements regarding monitoring that all interested parties should be involved in the monitoring studies to be sure that monitoring is carried out and the necessary data is obtained to make allocation decisions.

Pages 82-83, Environmental Consequences to Vegetation, (All the Alternatives) - An inspection was made of the Henry Mountains on October 7-9, 1980, by representatives from the Bureau of Land Management, Division of Wildlife Resources, and several biologists from Yellowstone National Park, Catalina Island, and the National Bison Range. Based on the experience of all involved, it was determined that slope was not a factor in restricting bison use and that they frequently made use of steep-sloped areas as well as more gentle areas. We also found that distance from water was not significant as related to bison distribution and use. Bison often forage at distances up to six miles from water. Therefore, the unsuitability criteria of slopes greater than 75 percent or rangeland more than four miles from water do not seem to be appropriate criteria for defining the bison range. The Division of Wildlife Resources purchased 417 AUM's on the Dry Lakes allotment for bison use. However, only 226 AUM's are needed for the bison on this allotment at current population levels. Yet by using the unsuitability classification just discussed, the grazing capacity for this allotment only shows 88 AUM's available for bison. We believe at least the 226 AUM's are available for bison use on this allotment.

36.20

Comment Letter 36

8

Page 86, Riparian Zones - In the last paragraph of this section, it states "It is expected that there would be little or no change in the condition of any riparian zone under Alternatives A, B, O, or E. This is because no fencing or changes in the period of use for cattle are proposed to protect or change the pattern of use in riparian areas." We encourage the Bureau of Land Management in its planning process and the development of the allotment management plans that due consideration be given to improving critical riparian areas.

36.21

Page 89 - We do not agree with the assumption that current deer numbers--362 animals on summer range within the resource area--reflect summer range grazing capacity. The long-term optimum buck harvest for this unit averaged 370 animals and occurred between 1955 and 1964. Based upon the state's accepted formula for determining deer populations, it has been calculated that a stable herd of 3,900 mule deer inhabited Unit 52--72 percent of these deer were dependent upon the critical valued summer ranges and would require 2,923 AUM's. A multitude of factors caused the deer herd to be reduced. Once the herd was reduced, the levels were too low to quickly respond to management, especially considering the low reproductive potential. Thus, we believe the Environmental Impact Statement is in error to assume that only 34 percent of the forage of the summer range is nutritionally adequate or usable to deer.



## Response Letter 36

36.1

The analysis of anticipated changes in ecological condition and trend is correct. Table 1 and Figure 1 in this Final EIS show that grazing could increase significantly above current use throughout most of the planning area. When grazing use is considered over the entire planning area is adjusted to the estimated grazing capacity, the total amount of allowable increase exceeds the total needed reductions. A comparison of active preference, average licensed use, and forage available to livestock is shown by allotment on Table 2-2, Alternative A.

Improvement in rangeland condition and trend could be expected on allotments where grazing use would be reduced to within the allotment's grazing capacity. Condition and trend would be expected to be maintained on allotments where average licensed use is currently below grazing capacity.

The increases in grazing use analyzed in this EIS are within current forage production capacities. Anticipated increases in forage production/availability due to proposed rangeland improvements are not calculated into the current forage production estimates and are not an element in the rangeland condition and trend analysis.

36.2

Please refer to Letter Response 30.1.

36.3

The subtotal column for current bison grazing use should be 2,470, while the total column should be 2,696 in Table 2-2. These corrections have been made in this Final EIS.

36.4

Page 1 of this Final EIS states: "The objective of the [grazing management] program is to maintain and/or enhance vegetation, livestock grazing, recreation, wildlife, watershed, and other resources." This statement is in accordance with BLM Manual 43 CFR/4110. Alternative E, the preferred alternative, identifies short-term localized impacts; however, in the long term, these impacts would be minimized as multiple-use decisions are implemented. See Table 2-5 for a comparative impact summary of all alternatives.

36.5

Table 1-3 in this Final EIS has been amended to include the Utah Division of State Lands and Forestry. However, BLM does not agree with your comment: "The State Division of Wildlife Resources has total management responsibility for the wildlife in the area." Table 1-3 correctly identifies the Joint BLM/UDWR management responsibilities for wildlife numbers and wildlife habitat.

36.6

Alternative B requires that grazing be analyzed at active preference levels for livestock and existing big game reservations. Because there are no existing forage reservations for antelope or bighorn sheep, for analytical purposes only, no forage could be allocated to these species under this alternative.

## Response Letter 36

36.7

All forage data presented in Table 2-2 have been adjusted for suitability through a computer allocation process using the soil-vegetation inventory and supplemental information. The criteria for allocating forage to cattle and sheep is referenced in this Final EIS in the References Cited section (see USD1, BLM, 1978). Suitability for bison was also adjusted through the soil-vegetation inventory computer allocation process using criteria as referenced in Ritchie et al. (1980). (Please refer to Letter Response 30.1.) If you are interested in suitability determinations for any particular area, this information is available in the Richfield District Office.

Please remember that suitability criteria are applied conditionally for initial forage allocation purposes. These criteria do not necessarily mean that a particular area is permanently excluded from livestock or big game grazing use.

Suitability determinations are not final at this time. During development of AMPs, permittees will have an opportunity to review the suitability determinations for their allotment and to demonstrate that the initial suitability assessment by BLM is justified.

36.8

Under Alternative C, no livestock grazing would be allowed on crucial deer and bison ranges in seven allotments (Crescent Creek, Sawmill Basin, Nasty Flat, Pennell, Dry Lakes, Sandy 2, and Steele Butte [see Table 2-2]). Even though livestock use would increase by 13,173 AUMs, this use would occur principally on those areas considered marginal habitat for big game. Also, refer to Letter Response 30.4.

Please refer to Letter Response 6.1.

36.9

36.10

Bison were removed from this alternative because of their direct competition with cattle for forage. Therefore, for analytical purposes, removing bison forage requirements provided a better indication of the optimum livestock grazing level.

36.11

BLM agrees. UDWR, Division of State Lands and Forestry, and livestock permittees will be provided an opportunity to participate in the monitoring program.

See Letter Response 17.20.

36.12

36.13

The text has been changed to reflect your suggestion under Ecological Condition, Vegetation section, Chapter 3 in this Final EIS.

36.14

The years for which trend data are available are included in Appendix 3, Table 1, Column 3 in this Final EIS.

36.15

Water sources have been included as crucial habitat for bighorn sheep in the Animal Life section, Chapter 3 in this Final EIS.

36.16

Because your comment does not specifically identify any apparent inconsistencies, it is impossible to address or resolve.



## Response Letter 36

- 36.17 See Letter Response 30.7.
- 36.18 Alternatives C, D, and E identify several potential rangeland improvements that would benefit both big game and livestock. Figure 4-1 in this Final EIS gives approximate locations of these improvements.
- 36.19 Figure 4-1 gives approximate locations for potential rangeland improvements. However, exact locations for possible prescribed burns have not yet been identified (see Land Treatment section, Chapter 4). The proximity to Class I areas would be a consideration for this type of land treatment. Any controlled burns would be of limited areal extent and would be conducted over a limited time period. A Smoke Management Plan would implement proper dispersion of smoke emissions.
- 36.20 Your comment will be considered in the decision-making process. Please refer to Letter Comment and Response 30.1.
- 36.21 Please refer to Letter Response 30.10.

## Comment Letter 37



United States Department of the Interior  
NATIONAL PARK SERVICE  
ROCKY MOUNTAIN REGIONAL OFFICE  
655 Parfet Street  
P.O. Box 25287  
Denver, Colorado 80225

IN REPLY REFER TO:

L7619 (RMR-PC)

2 5 FEB 1983

Memorandum

To: District Manager, Richfield District, Bureau of Land Management, Richfield, Utah

From: Associate Regional Director, Planning and Resource Preservation, Rocky Mountain Region

Subject: Review of Henry Mountain Grazing Draft Environmental Impact Statement (DEIS)

The National Park Service (NPS) has reviewed the subject draft EIS and has the following comments:

The DEIS (pages 72 and 80) recognizes the general management plans for Capitol Reef National Park and Glen Canyon National Recreation Area. However, it is not clear from the document that the draft EIS considered whether any range improvements and grazing alternatives for allotments extending into these units would be compatible with the management objectives and planned management efforts for these two areas. A similar concern exists for Canyonlands National Park, which borders the Flint Trail allotment.

### 37.1

Our principal concern is that consequences for in-park allotments were not addressed. We strongly believe that no adjustments to preference should be made without studying entire allotments, both inside and outside park boundaries. For example, the DEIS (p. 13) presumed the scheduled phase out of grazing in Capitol Reef National Park and thus eliminated the possibility of continued grazing there. However, the act of October 15, 1982, (96 Stat. 1639) allows grazing in the park until 1994, and provides for an impact study by the National Academy of Sciences (NAS). We feel that the Bureau of Land Management (BLM) already knows enough about in-park grazing problems on certain allotments to make informed decisions and adjustments to grazing in some of those areas. They have, for example, monitored in-park trend and condition survey plots every 2 to 3 years since about 1968. At the recent preliminary scoping meeting on the upcoming NAS study, we agreed with BLM that NAS could only make an accurate assessment of grazing by studying the allotments as a whole, rather than only the in-park portions. We believe this same rationale should be applied to the EIS. We recommend that either the allotments that are in the park be withdrawn from consideration in the final EIS or that the in-park portions be added and recommendations made on allotments for which there is a sufficient data base.

The NPS preference is to keep animal unit months (AUM's) at or below present licensed use levels for those allotments straddling the boundaries of Capitol Reef National Park and Glen Canyon National Recreation Area. Until the



2

above-mentioned NAS studies are done, for example, we are not certain enough information exists to choose an alternative to use full active preference of AUM's. We suggest that a change in active preference would affect in-park grazing use because there is little or no control of livestock with respect to the park boundary. Without boundary fencing, livestock go where they wish--controlled by landforms and availability of water and forage. We understand that active preference AUM's for allotments within Capitol Reef National Park, for example, were based on use preferences of the respective livestock operators. If so, the NPS would object to such a subjective allocation of park resources, but would prefer to wait upon the results of the NAS study.

Some comments and/or questions follow concerning specific grazing allotments. These remarks should be addressed in the final EIS.

The AUM's listed in the EIS for those allotments extending into Capitol Reef National Park substantially agree with the AUM's given in Table 13 of the Environmental Assessment for Proposed Grazing Phase Out in the park, approved August 12, 1974. A comparison of those documents is given below:

Table 1 -- Comparison of NPS EA and BLM DEIS

Allotments	Active Preference (from BLM DEIS)	Capitol Reef AUM's (from Table 13, NPS EA)
Cathedral	B 2,503 P 495	B 2,811 P 495
Hartnet	B 1,021 P 1,917	B 1,022 P 1,917
Sandy I	B 927 P 282	B 987 P 282
Sandy II	B 2,228 P a	B 2,228 P 172
Sandy III	B 305 P 680	B 304 P 680
Waterpocket b	B 2,861 P 164	B 3,177 P 182

B=BLM  
P=Park

Footnotes:

a. No in-park AUM's listed in DEIS for Sandy II allotment (see specific discussion of Sandy II issues).

37.2

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b. Only cattle AUM's are shown in this table (see specific discussion of sheep AUM's in Waterpocket issues).

37.3

Cathedral: The DEIS shows 2,503 AUM's (B) and 495 AUM's (P) but the NPS EA shows 2,811 AUM's (B) and 495 (P) in the Cathedral allotment. Why was preference lowered on the out-of-park portion by 308 AUM's without a similar reduction in-park? Cattle do graze allotment or pasture-wide without regard for political boundaries unless controlled. A particular problem exists in the Cathedral allotment with respect to water. A great deal of water is available to livestock in Middle Desert Wash in upper Cathedral Valley on the in-park portion of the allotment. Because of this water, more cattle graze in-park than the vegetation can support.

According to Welsh (1982) (Welsh, Stanley L. 1982. "Range Condition Survey of Hartnet and Sandy III Allotments, Capitol Reef National Park, Utah." (unpublished report to National Park Service) Endangered Plant Studies, Orem, Utah.):

"In the sandy vegetative type measured in Cathedral Valley. . . . The carrying capacity is indicated at a rate of about one animal unit per two acres per day. An animal unit month (AUM) would require more than 50 acres. This is considered to be borderline grazing land, i.e., lands with more than 50 acres per animal unit month are considered to be non-grazing lands. Animals will tend to concentrate around springs, seeps and along stream courses where grazing is better. This will cause reduction of the more palatable plants in those areas, and will increase the erosion rate."

The DEIS lists no fencing and cattle guard improvements to control the overuse of Upper Cathedral Valley. Incidentally, the preference BLM has assigned in-park works out to 42 acres/AUM; as stated above, Welsh (1982) found one AUM to require more than 50 acres. Table 2-4 of the DEIS lists two new reservoirs and "implement a new grazing system" for the Cathedral allotment but it does not describe where or when the new reservoirs will be constructed or what the new grazing system will be. We cannot assess these unknowns.

37.4

Sandy II: The DEIS does not list any in-park Active Preference AUM's in the Sandy II Allotment. Administratively, this may be true but it is only part of the story. The grazing rights on this allotment have changed hands twice since the establishment of Capitol Reef National Park, so, for park purposes, the historical grazing operator or heir is no longer present and the in-park grazing on this allotment has been phased out. Table 13 from the NPS EA listed 2,228 AUM's out-of-park and 172 AUM's in-park for the Sandy II allotment. The 172 AUM's have been phased out. But since there is no boundary fence or other control, trespass grazing from at least some of the remaining 2,228 AUM's occurs. The DEIS lists no fencing or other improvements that would help to reduce or eliminate this problem. If the final EIS could address this issue, we believe it would go a long way towards solving a mutual problem between the NPS and BLM. We also suggest that the final EIS address specific rehabilitation procedures when a grazing allotment is abandoned, such as removing old fencing and stock tanks, reclaiming roads, or rehabilitating heavily impacted soils.

37.5



Sandy III: Seventy-five percent of the Sandy III Allotment is in Capitol Reef National Park. The DEIS lists reconstruction of three reservoirs and construction of one corral as proposed range improvements for this allotment. In his analysis of this allotment, Welsh (1982) made some significant comments about range condition:

"The area within Capitol Reef National Park that lies in the Sandy III grazing allotment consists of 18,556 acres, of which only 13,589 acres (73.2%) are considered to be accessible to grazing animals. There are 680 AUM's of allowable use in the park, but actual use has historically been less than that. Use has fluctuated from 650 in 1979 to 68 in 1978, with most years supporting more than 500 AUM's. The average for the period from 1974 to 1982 is 452. At the 680 allowable AUM level the total land area available would be grazed at the average level of one animal unit for each 20 acres; the average grazing use of 452 animal units would require 25.1 acres per animal unit.

"The average level of grazing in the Sandy III allotment is in line with the production on the best grazing land in the district, but is thought to present an overload for the allotment as a whole. At some locations in the strike valley of Sandy III allotment, cheatgrass has completely dominated the vegetation. During the spring and early summer of 1982 the vegetation appeared to be lush over much of the allotment due to the presence of cheatgrass, but on dry years the lands dominated by cheatgrass will be essentially barren, or they will bear the bleached remains of the grass of previous seasons. On the basis of the vegetation produced during 1982 growing season, there are about 1.5 animal units per acre per day (or 3/4 acre per animal unit day) in the best of the grazing types in the Sandy III allotment. This computes to about 23 acres per unit month (AUM). All other portions, with the exception of the small acreage of sandy terraces and benchlands that have more grasses, are estimated to be less productive, e.g., the juniper community is very low in productivity. And, in a year with less moisture than that of 1982 the productivity of forage and subsequent carrying capacity would be lower."

37.6

Dr. Welsh's observations indicate an unacceptable range condition for public domain lands much less a national park. Since the vegetative communities of the out-of-park portion of this allotment are similar to the in-park portion, we ask that BLM reconsider their analysis of the Cathedral, Hartnet and Sandy III allotments. The reconsideration should address the apparent difference between the BLM range evaluation and that of Dr. Welsh.

37.7

Waterpocket: Appendix 2, Table 1 (DEIS) shows the Waterpocket allotment to have the worst range condition of all monitored allotments in the park. The DEIS claims this to be a "distribution problem" and Table 2-4 lists 11 water projects proposing to improve distribution by spreading the livestock allotment-wide. Waterpocket is the only in-park allotment that calls for an

37.7  
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increase in active preference. We believe the final EIS should address why it would be necessary to increase preference on the area of worst range condition. Since the DEIS is not specific about implementation, we suggest the final EIS specify which will come first, increases in preference, or construction of the 11 water projects. We ask also for an assessment of how these projects will impact park resources.

37.8

The Waterpocket Allotment Management Plan states, "Sheep . . . will be excluded from using that portion of Grand Gulch proper below Cottonwood Seep, 43 CFR 4112.2." But the DEIS lists 18 in-park sheep AUM's. There are about 1,500 acres north of Cottonwood Seep in the in-park portion of this allotment. We don't believe that small acreage would support 18 AUM's. We ask that BLM correct this apparent error.

37.9

We have identified the Fountain Tanks area to be our first priority for reintroduction of desert bighorn sheep. We recommend that the final EIS address the well known conflicts between domestic and bighorn sheep, and consider eliminating sheep use in this allotment.

Gulffrog, Robbers Roost, Rockies, Sewing Machine, Flint Trail, and Little Rockies. In addition to the Waterpocket allotment mentioned earlier, the other above allotments extend into Glen Canyon National Recreation Area. Many of the above expressed concerns on considering park values also apply here. For example, the NPS would be very concerned about conducting such range improvement projects as burning and reseeding within the national recreation area. Also, we believe that conflicts between recreationists and livestock would cause recreation use to decline within the allotments.

37.10

Of these allotments, the Flint Trail allotment causes us the most concern. The Flint Trail presently has no AUM's allotted to it. The preferred Alternative (E) would allocate no livestock AUM's to this allotment, but would permit it to be "used on a temporary, as needed basis for livestock grazing while other allotments were being rehabilitated or in a emergency situation." The NPS would have no objection to this arrangement. However, the final EIS should indicate that the Superintendent of Glen Canyon National Recreation Area would be given prior notice as a mitigating measure if such grazing were to take place. Also, the DEIS indicates two proposed stock tanks for this allotment, but does not explain their location, or the necessity for them if the allotment is to remain unallotted.

37.11

The eastern portion of the Flint Trail allotment includes the Elaterite Basin within the national recreation area and borders upon Canyonlands National Park. The park boundary is unfenced and we believe the final EIS should recognize that trespass grazing within the park occurs when this allotment is used. The final EIS should include the impact of recreationist/livestock conflict here. Hikers crossing Elaterite Basin from the North Trail Canyon enroute to the Maze use water at available springs and potholes. Livestock in this area pollute those water sources.

37.12

The final EIS should also recognize that in February 1982 Canyonlands National Park reintroduced desert bighorn sheep into the Maze district of the



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park. This was done in part with the knowledge that Elaterite Basin in the Flint Trail allotment was unallotted for livestock and that the Utah Division of Wildlife Resources was planning a similar reintroduction in the Orange Cliffs. Elaterite Basin appears to be good bighorn habitat and we anticipate that it would provide a buffer zone between the Maze herd expansion. Bighorn habitat is not just precipitous terrain. Flat or rolling areas adjacent to the steep, rougher areas are an extremely important component of the bighorn habitat. We believe Elaterite Basin will serve this function and that the benches and talus of the Orange Cliffs above Elaterite Basin will provide summer range for bighorn rams. Similar rolling flats and separate summer usage for rams in the Island in the Sky of Canyonlands National Park are known to be important habitats for bighorn. The final EIS should incorporate an analysis that existing research literature strongly indicates that competition with livestock, including cattle, is eventually detrimental to bighorn sheep. The tenor of various alternatives in the EIS is that allocation of AUM's will provide for their need. The key to desert bighorn sheep management is habitat protection, maintenance, and/or enhancement. Livestock grazing is an activity that alters and damages bighorn habitat. We would like to see the final EIS include a statement that is important to bighorn survival to set aside a few key areas of habitat for exclusive use by bighorn.

37.13

In light of the above, we suggest that the final EIS consider an additional or sub-alternative to phase out all grazing in the Elaterite Basin--perhaps by making it a separate allotment with no AUM's allocated. We believe the result of such action would be to enhance bighorn habitat, eliminate livestock/hiker conflicts, and greatly reduce fencing costs. Additionally, the reintroduction of bighorn both adjacent to the Flint Trail allotment and in the above mentioned Fountain Tanks area within part of the Waterpocket allotment makes it reasonable that "Long Term Objective (AUM's)" for bighorn sheep be added to Table 2-2, Alternatives E.

37.14

37.15

Neglected Allotments  
Four allotments within the administrative scope of the Henry Mountain Resource Area have been omitted from the DEIS.

a. Dry Bench: This allotment is totally within Capitol Reef National Park. BLM has granted "non-use" on this allotment for several years, perhaps since 1965--records are incomplete.

b. Sleeping Rainbow: Nearly all of this allotment is within the park. The historic operator has retired and has a life estate agreement with NPS.

c. Weeks Mesa: The historic operator voluntarily phased out from use of this allotment.

d. Chimney Canyon: Also known as Chimney Creek. We are not sure what happened in this allotment. We believe it to be in "non-use."

These allotments contain 19,991 acres and 352 AUM's. We realize this is a relatively small grazing resource, and, in the case of Weeks Mesa and Sleeping Rainbow, little or no planning needs to be done. The status of Chimney Canyon

37.15  
(cont)

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is uncertain to us and Dry Bench with 14,027 acres and 213 AUM's didn't even rate consideration. Again, we believe that BLM has sufficient information in some of these allotments to list them in a manner similar to the "unallotted areas" in the Tables of Chapter 2 of the DEIS.

Other Concerns:

Threatened and Endangered Species

We believe that restricted, sensitive, threatened and endangered species are very superficially treated in the DEIS, especially as it may pertain to NPS responsibilities. Threatened and endangered plants received only one paragraph of text and a very general table. The Standard Operation Feature #5 (chapter 2, p.27) seems to have a very large loophole in it. Feature #5 seems to say two things: First, BLM will survey potential habitat for threatened or endangered species, including sensitive species under consideration, prior to any action; second, BLM will consult with the U.S Fish and Wildlife Service if they determine there might be an effect on listed species. The DEIS on p. 37 states, "the only plant occurring within the planning area which is currently officially listed . . . is *Sclerocactus writhiae* . . . Do these segments mean BLM will consider and consult only if their proposed surveys find this one cactus, or will they consult on finding species under consideration? We feel clarification is needed on this issue. The DEIS (p. 119) states that the unavoidable impact of " . . . big game populations would remain far below their biotic potential under Alternatives A, B, D, and E." is only part of the story. What about the impacts of grazing to small mammal populations? If we can extend the "far below . . . biotic potential" statement to primary consumers such as small mammals, what effect does this have on secondary consumers such as the carnivores, the raptors and the endangered peregrine falcon? Page 119 also states that Alternative C, Manage for Optimum Big Game Production, "would not provide sufficient high quality useable forage to enable big game numbers to increase." If Alternative C is supposedly developed primarily to benefit big game and it fails to "provide sufficient . . . forage . . ." can it be a reasonable alternative? We suggest the final EIS should consider the impact of livestock grazing on all wildlife, not just mule deer, bighorn sheep, bison, pronghorn and burros. This should be especially pointed out regarding these resources in the allotments extending into units of the National Park System.

Planning

Page 64 notes that the Little Rockies area was designated as a National Natural Landmark in 1975. BLM should also be aware that the Henry Mountain Planning Area also contains several potential National Natural Landmarks. They are as follows:

Garfield County  
Clay Point Fossil Plant Localities  
  
Wayne County  
Caineville Reef Fossil Locality  
Little Black Mountain Intrusion Complex  
North Caineville Mesa-Factor Butte-Blue Valley  
North Pinto Hills Oyster Reefs



## Comment Letter 37

37.18  
(cont)

The final EIS, project planning, and implementation of a selected alternative should consider these potential designations and avoid impacts which would adversely affect the ecological and geological features of these areas. Further information on these areas can be obtained from Ms. Carole Madison, National Park Service, Rocky Mountain Regional Office, P.O. Box 25287, Denver Federal Center, Denver, Colorado 80225 (Phone: 234-6443).

37.19

BLM should also be aware that the Dirty Devil River from Lake Powell to the Highway 24 bridge north of Hanksville and the Green River from the Colorado River to Range Creek have been included in the final list of the Nationwide Rivers Inventory. Rivers which have been included on this list have been selected after consideration of the degree to which the river and corridor are undeveloped, and the outstanding natural and cultural characteristics of the river and its immediate environment. The final EIS project planning and implementation of a selected alternative should take these designations into account and attempt to avoid visual impacts to the river corridors. Adverse impacts to these rivers could result in their elimination from further consideration for inclusion in the National Wild and Scenic Rivers System.

37.20

We are concerned about the impacts to visual resources, wilderness, and primitive recreation opportunities as mentioned in Chapter 4, particularly where such areas and opportunities are adjacent to units of the National Park System. It appears that a number of highly scenic areas and wilderness study areas could be adversely impacted by grazing and rangeland improvements. Upon selection of an alternative, we recommend that further planning be done in order to minimize these impacts. We also recommend that any alternative include the stipulation that construction in wilderness study areas be delayed pending congressional decisions on their status, as proposed on page 102.

Other Specific Comments

37.21

Page 5: Since the Cathedral, Hartnet, Chimney Canyon, Meeks Mesa, Sleeping Rainbow, Sandy I, Sandy II, Sandy III, Dry Bench and Waterpocket allotments are in Capitol Reef National Park and in the area "administered" by the Henry Mountain Resource Area, we feel the "unresolved issues" section should be changed from five to 10 allotments (see also above specific issue comments on Sandy II and neglected allotments).

37.22

Page 24: Where would these improvements be located?

37.23

Pages 62-65: Most of the lands with BLM allotments within Capitol Reef National Park have been proposed as wilderness. This should be indicated.

37.24

Page 82: Alternative A states that overutilization would continue on seven allotments and refers to Table 4-1 but Table 4-1 appears only six allotments exceeding grazing capacity.

37.25

Page 86: The final EIS should recognize that the conditions in "Riparian Zones" is not due to overgrazing watersheds but because of direct entry into riparian areas by large numbers of livestock.

37.26

Pages 89-94: It is important to realize that deer are not confined to the Henry Mountains and that they are an important part of the fauna in adjoining

## Comment Letter 37

37.26  
(cont)

park units. Past BLM forage allotments have relegated deer to areas where stock could not graze. The final EIS should recognize that overgrazing in most areas within park areas may be the greatest factor in reduced big game use. This is especially true in the Hartnet, Cathedral and Sandy III allotments.

37.27

Page 98: It is believed that antelope once occupied portions of the South Desert in the Hartnet allotment. Overgrazing and hunting are assumed to be the major causes for their disappearance. Since this is a part of Capitol Reef National Park, we believe every effort should be made to control grazing in that area to bring about the return of enough vegetation to support antelope once again. In this regard, the D&S gives considerable consideration to feral burros. We suggest that the final EIS should give greater attention to the possible reintroduction of native animals into those areas where grazing and related actions have caused their extinctions. This should include attempts to ascertain historic presence and plan for possible reintroduction.

37.28

Page 104: Recreational pursuits have also been impacted by grazing, especially in the Halls Creek area where fouled water sources and preferred camping areas have been rendered unusable by back country users. This should be noted in Table 4-12.

*Robert A. Strait*  
for: Richard A. Strait

bcc:  
Regional Environmental Officer, Denver, CO  
WASO-135 (Environmental Compliance)  
Supt., Capitol Reef NP  
Supt., Canyonlands NP  
Supt., Glen Canyon NRA  
Asst. to the Reg. Dir., Utah



## Response Letter 37

- 37.1** Please refer to Letter Response 12.1.
- 37.2** The active preference levels which you mention are not based on "subjective use preferences" by livestock permittees. These levels were developed by NPS as part of the environmental assessment prior to the legislation enlarging Capitol Reef National Park. In reference to the future allocation of Park resources, please refer to Appendix 1.
- 37.3** BLM has no authority to change the active preference level on NPS lands. Also, please refer to Letter Response 12.1 and Appendix 1. BLM's criteria for suitability requires 32 acres per AUM; therefore, 42 to 50 acres per AUM were considered unsuitable. See Figure 4-1 for approximate location of new reservoirs. Grazing systems will be developed in cooperation with NPS during implementation of the grazing management program.
- 37.4** Please refer to Letter Response 12.1.
- 37.5** Upon elimination of grazing in Capitol Reef National Park, actions on NPS lands would be beyond the jurisdiction of BLM.
- 37.6** Please refer to Letter Response 35.3.
- 37.7** The Studies Support Inventory column for the Waterpocket Allotment on Table 3-3 of this Final EIS has been changed to read: "Tread studies support a lower grazing capacity estimate than indicated by the soil-vegetation inventory." In addition, refer to the description of the monitoring program in Chapter 2 of this Final EIS. Increases in active preference on Waterpocket Allotment will be made only after range and improvement projects are implemented and additional intensive monitoring studies are completed. These two actions will be taken only after consultation with Capitol Reef National Park and Glen Canyon NRA.
- 37.8** BLM is aware of the sheep exclusion from Grand Gulch below Cottonwood Seep specified in the Waterpocket Allotment Agreement and Management Plan. Those AUMs could not be allocated to sheep due to that stipulation; this Final EIS reflects this exclusion in Table 2-2.
- 37.9** As stipulated in the Waterpocket Allotment Agreement and Management Plan, there has been no sheep grazing in the Capitol Reef part of the Waterpocket Allotment since 1975. BLM has no intentions of changing this agreement.
- 37.10** Please refer to Letter Response 32.1.
- 37.11** There would be potential for trespass grazing in Canyonlands National Park if Flint Trail were used by livestock. However, it is BLM policy that, although we issue licenses for forage use on BLM-administered lands, it is the responsibility of the owner to control his livestock. Also, it is not BLM policy to construct fences bet-

## Response Letter 37

- 37.11 (cont)** when those lands administered by BLM and those not. Therefore, any trespass grazing would be a matter between the NPS and the livestock owner and would be beyond BLM jurisdiction.
- Flint Trail unallotted area would be used only on an as-needed basis (during periods of drought, to allow vegetation to become established in treated areas, etc.). This use would be licensed on a temporary, nonrenewable basis. Therefore, the extent and significance of this impact is unquantifiable, although probably low.
- 37.12** The Flint Trail unallotted area has been recognized as a potential site for reintroduction of bighorn sheep. Accordingly, under Alternative E, 808 AUMs were allocated to meet UDW's long-term management goals for these animals. BLM recognizes that livestock grazing can be detrimental to these animals and, therefore, has stipulated that any cattle grazing in this area occur only in an emergency and/or on a temporary basis. Even under these circumstances, coordination with UDW and NPS would be initiated. Such stipulations would preclude most cattle/bighorn sheep conflicts in this area.
- 37.13** Please refer to Letter Response 37.12.
- 37.14** No desert bighorn sheep forage allocations were made in the Waterpocket Allotment because (1) this issue was not brought up during either the scoping meeting or public meetings; and (2) UDW did not identify any long-term management goals for bighorn sheep in this allotment. It is important to note that, as stipulated in the Waterpocket Allotment Agreement and Management Plan, no domestic sheep grazing has been allowed in the Capitol Reef part of the Waterpocket Allotment since 1975. BLM has no intention of changing this agreement.
- 37.15** The Henry Mountain Draft EIS only analyzed allotments within the Henry Mountain Planning Area. The four allotments mentioned in your comment are outside this planning area. An Environmental Review (USDI, NPS, 1974) of the phasing out of grazing within Capitol Reef National Park concluded that: "An environmental impact statement is not required." Ultimate analysis of these four allotments will occur after the study period mandated by Public Law 97-341, 96 Stat. 1639 (see Appendix 1) is concluded.
- 37.16** Item 5 under the Standard Design, Construction, and Operation Features section has been changed to read: "A literature search and an on-the-ground survey for threatened, endangered, or sensitive species will be conducted prior to taking any action that could affect these species. Should BLM determine that there might be an effect on listed species, formal consultation with FWS will be initiated."
- Under BLM policy, any plant species under consideration for listing as threatened or endangered would be treated as if they were officially listed. Under Section 7 of the Endangered Species Act, formal consultation with FWS is only required in the event that potential impacts on an officially listed species are identified.



## Response Letter 37

37.17

The purpose of the EIS is to address only significant issues that: (1) affect the human environment; (2) are of high public interest; (3) are highly controversial; and (4) are covered by law. The Henry Mountain EIS did not address impacts of grazing to small mammals because this was not identified as a significant issue at either the scoping or public meetings.

Thank you for calling our attention to the error on Page 119 which states that: "Alternative C...would not provide...increase." This has been changed in this Final EIS to read: "Only Alternative C would provide sufficient high quality useable forage to enable big game numbers to increase."

37.18

The National Natural Landmarks Program (USDI, Heritage Conservation and Recreation Service, 1979) does not require impact mitigation for potential or registered National Natural Landmarks. The paleontological resources mentioned will be considered when ground-disturbing actions are scheduled. When areas scheduled for range-land improvements are inventoried for cultural resources, any paleontological resources noted are recorded and recommended for mitigation, if warranted.

37.19

It is acknowledged that the segments of the Dirty Devil and Green Rivers referenced are included in the Final List of the Nationwide Rivers Inventory. They are eligible for study for inclusion in the Nationwide Wild and Scenic Rivers System if Congress directs or the Governor applies for this study. However, none of the alternatives analyzed in the EIS propose actions that would adversely affect the inventory segments and their potential for study or designation; therefore, this topic was not included.

37.20

Provisions of the BLM IMP protect WSAs from impairment of wilderness values; the VRM system provisions ensure that visual values are recognized and protected. Alternatives C, D, and E would limit livestock grazing use to grazing capacity, ensuring that degradation of wilderness or visual resources by livestock use would not occur. Additionally, range-land improvements would not have significant effects on visual or wilderness resources in areas adjacent to NPS lands.

37.21

See Letter Response 37.15.

37.22

Approximate locations of potential range-land improvements proposed under Alternatives C, D, and E are shown in Figure 4-1 in this Final EIS.

37.23

Figure 3-9 and the Wilderness sections in Chapter 3 and 4 in this Final EIS have been changed to reflect proposed NPS wilderness areas.

37.24

Alternative A, Vegetation section in this Final EIS, has been revised to read: "Overutilization would continue on six allotments and on one unallotted area."

## Response Letter 37

37.25

Riparian zones constitute a portion of watersheds. If watersheds are overgrazed, it is likely that adjacent riparian zones are also overgrazed because livestock concentrate and loaf in these areas. The Riparian Zones section in Chapter 4 lists several factors that cause cattle to concentrate in riparian zones. Currently, cattle have caused most of the grazing-related impacts.

37.26

Mule deer use and/or past livestock overgrazing in the Hartnet, Cathedral, and Sandy 3 Allotments were not identified as significant issues in the scoping or public meetings. At the time the Draft EIS was prepared, livestock grazing in Capitol Reef National Park was scheduled to be eliminated. However, the National Academy of Science is scheduled to evaluate grazing on NPS lands (see Appendix 1). When that study is completed, grazing levels will be evaluated and forage use levels for livestock and big game adjusted, if necessary. Please refer to Letter Response 12.1.

37.27

The issue of reintroducing antelope into the Hartnet Allotment was not evaluated because (1) this was not identified as a significant issue at the scoping or public meetings; and (2) BLM is not aware of any formal plans by USFWS to reintroduce antelope into this portion of the planning area.

37.28

The text of Chapter 4 has been revised to reflect the information you provided. However, note that Table 4-12 includes only those allotments where vegetation overutilization would exceed grazing capacity.



Comment Letter 38

Response Letter 38

Kingston Utah  
Feb 26 1983  
Donald E. Spalding District Manager  
Bureau of Land Management  
Richfield Utah 84701

Dear Mr. Spalding:  
I would like to say a few words about the E.S.D. on the Henry mt allotment. Two that I am quite well acquainted with the Burr point & the Hanksville, Utah. These two allotments are in good shape. I am sure they could be improved by building more fences to scatter the cattle a little better. I am willing to help any way I can to better this range. I agreed with the Henry mt Resource and Range Committee on these comments to you. I don't have any way to do any scientific work on these allotments all I have is my eyes and they tell me there is enough feed on these allotments to double the no. of cattle that come on them at the present time with a few more water holes and some fences. I think it could be tripled and have feed to spare. I think you are way out of line if you plan any cuts on these allotments.

Yours truly  
Jack Gilman  
Kingston Utah

38.1

Livestock and big game forage allocations were based on 10 to 12 years of monitoring and trend studies, supported by a recent soil-vegetation inventory and estimates of utilization data; these data represent the best information available. The forage increases resulting from rangeland improvements are based on site-specific analysis and are shown in Table 2-4; approximate locations are shown in Figure 4-1.

38.1



Comment Letter 39

February 18, 1983

Mr. Donald L. Pendleton  
District Manager  
Richfield District Office  
Bureau of Land Management  
Richfield, UT 84701

Dear Mr. Pendleton:

Having reviewed the Draft Henry Mountain Grazing Environmental Impact Statement, I would like to offer the following comments for your consideration.

The information on active preference and average licensed use, indicates actual livestock use is approximately 50% of active preference. It appears that for at least the past 5 years nearly 50% of the total AUM's apportioned to this area have on the average been in a non-use status. This indicates that even though the active preference will decrease under the preferred alternative E, the grazing which will be allowed is still substantially higher than current use.

Overall, I would assume there will be significant increases in livestock numbers even though the active preferences will decrease. In essence a cut on paper not in actual numbers. The economic analysis for alternative E seems to substantiate this by indicating a 15% to 37% increase in ranch income which would correspond to increased numbers. Bear in mind that I'm looking at the overall situation, and this assumption seems to be correct in the case of a rancher whose active preference is more than the actual numbers he has been grazing. He will take a "paper cut" which may decrease his permit value, but his actual income is not affected, and may increase if he were able to increase his numbers.

Suppose, however, a rancher has been using his full permit. This rancher would then take an actual cut in numbers, in permit value and, consequently, his income.

It is unrealistic to assume that actual livestock use will increase to the levels proposed in alternative E, which is approximately 51% more than current numbers. As you have pointed out on page 76 the ranching operations are dependant on other public lands as well as private and rented land. The probability of permits on other public

Comment Letter 39

39.2  
(cont)

land increasing comparably is not very likely. This leaves the private land to absorb the increase which in most cases is not feasible, unless additional private land is purchased or rented. Judging from the past, what probably will happen is the rancher who is using less than his active preference will continue status-quo and the rancher who is fully utilizing his permit will receive a "real" reduction in livestock numbers. This in no way equates to a 15% to 37% increase in Net Ranch Income.

39.3

Another item is proposed sheep use. Grazing allocated to sheep is receiving a significant increase. The Draft EIS shows average sheep use at 306 AUM's and with alternative E that use will increase to 8499 AUM's. Again, this appears unrealistic, especially since 4 of the 8 sheep permits are in non-use. Also, those 4 permits in non-use will receive 5671 AUM's or 68% of the total sheep allocation. It is unlikely that a rancher who has not been using his permit for the last several years will suddenly start.

39.4

It would be helpful if a section were included in the Draft EIS on past grazing history, showing the past levels of actual use by permittee as compared to their active preference. Also, you should expand the economic analysis to substantiate the assumption that all permits will be filled to the levels you propose in alternative E thus resulting in Net Ranch Income increases.

39.5

I am unfamiliar with BLM policy on non-use, but it appears any level of non-use can be taken for any length of time without penalty. If this is the case then your policy is perpetuating underutilization of the available forage. This in turn reduces the capital returns to the government, and causes some degree of depression on the local economy. With current economic troubles both for the government and private individuals, the BLM should take advantage of utilizing the available forage with sound management practices. This would provide additional returns to the government and promote stable ranching operations.

39.6

Priorities should be set for reductions. First, reducing those permits with a history of non-use. In other words paper cuts first. In the case of the Henry Mountain Grazing area where actual average use is at or below the proposed active preferences it appears paper cuts are all that is needed. A maximum time period for taking non-use should also be established. If a permittee elects to take partial or total non-use which exceeds that time period then his permit should be reduced to the level he is actually using. This would free the unused AUM's and they could be distributed to any permittees who have taken actual cuts and need the additional AUM's. A policy of this type would not penalize those ranchers who fully utilize their permits, and who are obviously the most dependant on them.

39.7

Respectfully,  
*Steve Williams*



## Response Letter 39

- 39.1 Please refer to the first paragraph of Oral Testimony Response 39.
- 39.2 Please refer to Oral Testimony Response 32.
- 39.3 Your assumption may be correct; however, NEPA requires that BLM assess this situation. Therefore, it was assumed that all allocated sheep AUMs would be utilized.
- 39.4 Please see the Vegetation section in Chapter 3 for a discussion of the past grazing history of the planning area. There are no data on past levels of actual use. Available data have been compiled based on past active preference levels through 1976-1982 and adjudicated reductions. See Table 3-13 for a history of average licensed use. Also, see Oral Testimony Response 5.
- 39.5 Oral Testimony Response 39 describes the assumptions used to determine average licensed use levels.
- 39.6 BLM policy has been to allow nonuse for rangeland protection on a case-by-case basis in the Henry Mountain Planning Area. With stocking below active preference, the condition of many allotments has improved. Even though BLM and the permittees could have received more capital return by forcing grazing at active preference levels, the rangeland resource would have been depleted.
- 39.7 BLM policy for allotment reductions and increases is to treat every permittee equally. Please refer to Oral Testimony Response 32.

## Comment Letter 40

February 11, 1983

Donald L. Pendleton, District Manager  
Bureau of Land Management  
Richfield, Utah 84701

Dear Mr. Pendleton:

We appreciate the opportunity to comment on the Henry Mountain Draft EIS. Key objectives of this letter are to encourage adoption of/or changes to the following issues or standards:

1. The sample period used to estimate grazing average actual use rates;
2. a 12% upward adjustment to the actual use values due to a sell-down of cow numbers during the sample period;
3. the weight of cows and buffalo used in determining forage allowed per AUM;
4. the pounds of forage allowed per aum;
5. the number or lack of trend plots on the allotments;
6. utilization of forage on unallotted areas;
7. the use of SVM data even though the SVM approach is no longer to be used by the BLM to establish carrying capacities;
8. the lack of statistical error calculations for the data collected;
9. criteria used for determining areas suitable and unsuitable for grazing.

This comment letter by the Henry Mountain Resource Area Ranchers committee, is not an additional alternative but is a listing of concerns and possible actions. These proposed actions draw from other alternatives without reducing the preference. However, the rancher would be free to continue grazing use at/or below the current average level.

We will demonstrate in this letter that there is not a need for reductions to grazing permits. We are convinced that grazing preference is not out of line with forage production.

We suggest an upward adjustment of the "average use" values to more accurately reflect the real grazing needs of the allottees. The ranchers contend that the year 1977 should not be used in determining average use since 1977, a climatic catastrophe, (see supplement # 1) was an atypical grazing year during which the BLM restricted the level of grazing. Also, during the years 1976-1980 the cattle market was in the sell-down phase of

40.1



40.1  
(cont)

Page 2

the cattle cycle which would be reflected in the actual grazing use. During this period cow numbers statewide were reduced 12% because of the economy of the beef industry. We suggest that the average use be calculated from the years, 1976 through 1983, eliminating the high and low years (see supplement #2). Plus a 12% upward adjustment for the beef cycle fluctuations during the sample period.

The ranchers contend that cow weight value (1000 lb) used in allocating forage per AUM would more accurately represent the real average weight of cows on native range if the weight value was adjusted to 850 - 900 pounds (see supplements # 3 - 5). This adjustment would represent approximately a 6% reduction in forage per AUM during the months the cows are lactating (calculated from N.R.C. table 2B, 1976). The average weight of mature cows from four sampled herds in Wayne County was 859 lbs. rather than 1000 lbs per cow. The sample consisted of 213 animals. Since the cows on winter ranges are not, as a general rule, supporting a calf during November through March we ask that adjustments to the 800 lb forage allocation per AUM be made for these months. We suggest a 30% downward adjustment of the 800 lb. value. This range falls within values from table 2P, Nutrient Requirements of Beef Cattle, 1976.

We suggest that the following substantiates our conclusion that the forage allocation per AUM is too high for cattle on Henry Mountain area winter ranges.

1. An approach using data from USU Bulletin 472 and NRC Table, 2B.  
Variables: 1) 40.6% of cow winter range diet is Browse  
2) 50.4% of cow winter range diet is Grass and Forbs (2.7%)  
3) Desert grasses average 797 Kcal/lb.  
4) Desert browse average 643 Kcal/lb.  
5) Cow requires .40 Mcal/lb of forage  
6) Diet of 900 (882) lb cow would average 5.84 lbs of browse and 8.55 lbs of grass if 14.4 lbs IM is required and diet follows Cook's rites.

900 (882) lb cow requirements:

5.84 lbs of browse x 643,000 calories = 3,755,120 calories  
8.55 lbs of grass x 797,000 calories = 6,814,350 calories  
Browse + Grass = 10,569,470 calories

1000 lb cow requirements (NRC Tables):

20.5 lbs x 490,000 calories = 10,045,000 calories  
8.3 lb browse x 643,000 calories = 5,336,000 calories  
12.1 lb grass x 797,000 calories = 9,705,069 calories  
Browse and Grass Allowance = 15,041,469 calories

$\frac{10,569,470}{15,041,469} \times 100 = 70\%$

This indicates a 30% downward adjustment can be made in the forage requirement per AUM plus an additional adjustment for the difference between 900 lb animals and 1000 lb animals.

Page 3

40.2  
(cont)

2. Van Dyne et al (1980) reported daily intake values of 1.1 - 1.6 percent of body weight for cattle on rangeland. Assuming cattle on the Henry Mountain resource area average 900 lbs body weight and allowing 1.3 percent of body weight, the average intake per month would be 351 lbs. This is substantially less than the present allowance for an AUM and also less than the adjustment requested by this committee.
3. Haustad, Nastis, and Malechek in a research paper to be printed in the Journal of Animal Science February 1983, reported a voluntary intake of 1.2% of body weight per day for cattle on semi desert Utah ranges.  
.012 x 900 lb. cow x 30 days = 324 lbs of forage per AUM.  
This is once again much less than the 800 pounds allowed per AUM by the EIS method.
4. See supplements 6 through 8.

We contend that the forage allowance for buffalo exceed actual requirements. Our calculations are based on the following documented variables:

200 mature bison;  
Bull-cow ration 1:1  
Average mature bison weight: 787 lbs.;  
Bison Calving %: 45;  
2400 AUM for mature bison;  
bull average weight: 843 lbs.;  
cow average weight: 727 lbs.;  
animal unit: 100 lb. cow plus calf.

AUM: 20.5 lb. dry matter;  
average dry matter requirement for  
785 pregnant cow in second and third  
trimester: 13.05 lbs.;

The 800 lb AUM forage allocation for lactating bison should be adjusted downward by 12% since the AUM has been based on a 1000 lb. animal while average weight of bison is 785 lbs.

45 cows x 7 month x .12 = 38 AUM of additional forage

Since gestating cow bison on winter ranges are not supporting a calf during the winter months, this committee requests that for the months November through March the 800 lb. forage allocation for AUM be reduced 30% (table 2 NRC, 1976).

45 cow bison x 5 months x 800 lb. x .30 x 100 = 68 additional AUM's.

Since 65% of the cow bison and 100% of the bulls are not supporting a live calf 12 months out of each year, this committee requests that the 800 lb. forage allocation per AUM be adjusted downward 26% to be within National Academy of Science guidelines (Table 2, NRC, 1976).

155 mature bison x 12 months x 800 lbs. forage x .36 = 670 AUM's of  
800 additional forage

The ranchers committee vigorously opposes the formation of the Little Rockies allotment, at the expense of Rockies, Cedar Point, and Trachyte allotments. The original boundaries for these three allotments should remain as mapped on BLM maps, dated September 13, 1982, on file at the Loa ASKS office.

40.3



- 40.4 This proposed action would allow livestock to be shifted, where practical and agreeable, from allotments scheduled for reductions to unallotted allotments. Where allotments scheduled for reduction border allotments to receive AIM increases, some use from the short allotment may be shifted to the allotment due for increases. This is just, since the adjudication process must have failed to accurately allocate forage.
- 40.5 This proposed action allows for fall and winter grazing for all pastures in rotation systems until April 15 or the commencement of plant growth. At the commencement of plant growth animals will be shifted to one pasture.
- 40.6 This proposal allows the ranchers to voluntarily change any rest rotation grazing system to a deferred rest rotation system.
- This proposed action recognizes that forage farther than four miles from stock water can be profitably grazed when snow is available. Where practical the permittees will locate stock on areas remote from water when snow is adequate to supply stockwater requirements.
- 40.7 This proposed action allows for voluntary increases in fall/winter grazing in exchange for reduced use or non-use during the spring months.
- 40.8 This proposal allows for voluntary reductions or non-use during drought years for range protection.
- 40.9 This proposed action allows for supplementation (energy block or protein block) of livestock to improve distribution.
- This proposed action calls for rangeland improvements as proposed in alternatives C, D, and E. On allotments, where feasible and where adequate water is available, deferred grazing systems could be implemented.
- 40.10 Some allotments in the study area have new water developments which were installed after completion of EIS data collection. These developments may be near or within areas previously determined to be unsuitable for grazing because of distance from water. We urge that the EIS document take into consideration any increases in suitable grazing acreages due to recent water developments.
- 40.11 We cannot agree with the SVM method of inventory as a basis for establishing carrying capacities since the data on an allotment usually is collected during one growing season. If the process did take more than one year to complete, was forage production consistent, precipitation and growing degree days similar enough each year of inventory so that the inventory was equitable for all allotments? We also wonder what range or error measurement was applied to the forage per acre calculations?
- 40.12 We contend that designating areas as unsuitable due to arbitrary criteria and the attendant withdrawal of those acres from grazing use is unfair and unjust. For example, some allotments have a large percentage of their areas that fit in a low production per acre category, i.e. 35 to 45 acres/AUM. These acres can be grazed without crowding the higher producing areas.

- 40.13 Also due to the possible chance for error with the SVM inventory method, many areas may be taken out for suitability reasons when in reality they were eliminated unjustly due to the inadequacies of the system.
- The following is a quote from the position statement, USU Range Extension faculty, concerning SVM and associated forage allocation models:
- "The BIM in Utah currently automatically eliminates all acreage with greater than 50% slope, greater than 4 miles from water or with low forage production," i.e. 32 acres/AUM or soil surface factor of 60" from consideration in determining carrying capacities. The basis of these exclusions is to reduce over-utilization of the better range areas where animals concentrate in preference to the less productive sites. The application of this approach depends on each individual allotment and management situation. There is probably no way to know what the level of reduction should be beforehand. Where management efforts are made to control animal distribution in any way, this approach breaks down. This is particularly true under intensive management systems and efforts. The best way to account for uneven distribution is to monitor utilization on key areas and adjust stocking up/or distribution efforts accordingly."
- 40.14 We suggest that along with existing trend plots, established on the Henry Mountain area, the species frequency method be adopted for trend analysis in the study area. The "Species Frequency" method has been adopted by the BIM in some other western states. We encourage that trend data be gathered from areas that are not grazed by cattle, sheep or bison. This data could be used for comparison with harvested areas. We also contend that twenty seven plots, 5" x 5" in 1,213,021 acres cannot withstand statistical scrutiny.
- 40.15 We support the multiple use concept and encourage the stocking of unallotted areas. Where agreeable and feasible for permittees concerned, livestock from allotments scheduled for reductions could be transferred to the unallotted area. The Hanksville staff should make a serious effort to contact livestock producers to determine who would be interested in transferring their grazing privileges to an unallotted area.
- 40.16 We suggest that no increases or reductions in preference AIM's be made until five additional years of monitoring have been completed. This five year sequence should commence with the 1983 growing season.
- 40.17 In the future, livestock producers should receive a proportionate share of any increases in the number of AIM's that result from management or land treatments. Suspended non-use AIM's should be returned to permittees as range conditions and production improves.



Comment Letter 40

Comment Letter 40

40.17  
(cont)

In the event that a grazing permit is lost, due to default, these permits should be allocated to other permittees in the allotment.

Sincerely,

HENRY MOUNTAIN RESOURCE AREA  
RANCHERS COMMITTEE

*Dwight Williams*  
Dwight Williams, Chairman

*Verl Bagley*  
Verl Bagley,  
USU Extension Service

DW/VB:bs

Page 6

Concerns and Possible Actions

for

Henry Mountain Resource Area Draft  
Environmental Impact Study

by

The Henry Mountain Resource Area Ranchers Committee

Committee Members: Dwight Williams, Chairman

Jack King

Bliss Brinkerhoff

Leo Dee Jackson

Keith Durfee

Verl Bagley

Barlow Pace



Comment Letter 40

February 16, 1983

TO: Jake Garn, Orrin Hatch, James Hanson,  
Dan Harriott, Carl Peterson, Jim Yardley,  
Tom Christensen, Steve Gillmore, Booth  
Wallentine, Hardy Redd, Ivan Matheson,  
Larry Sip.

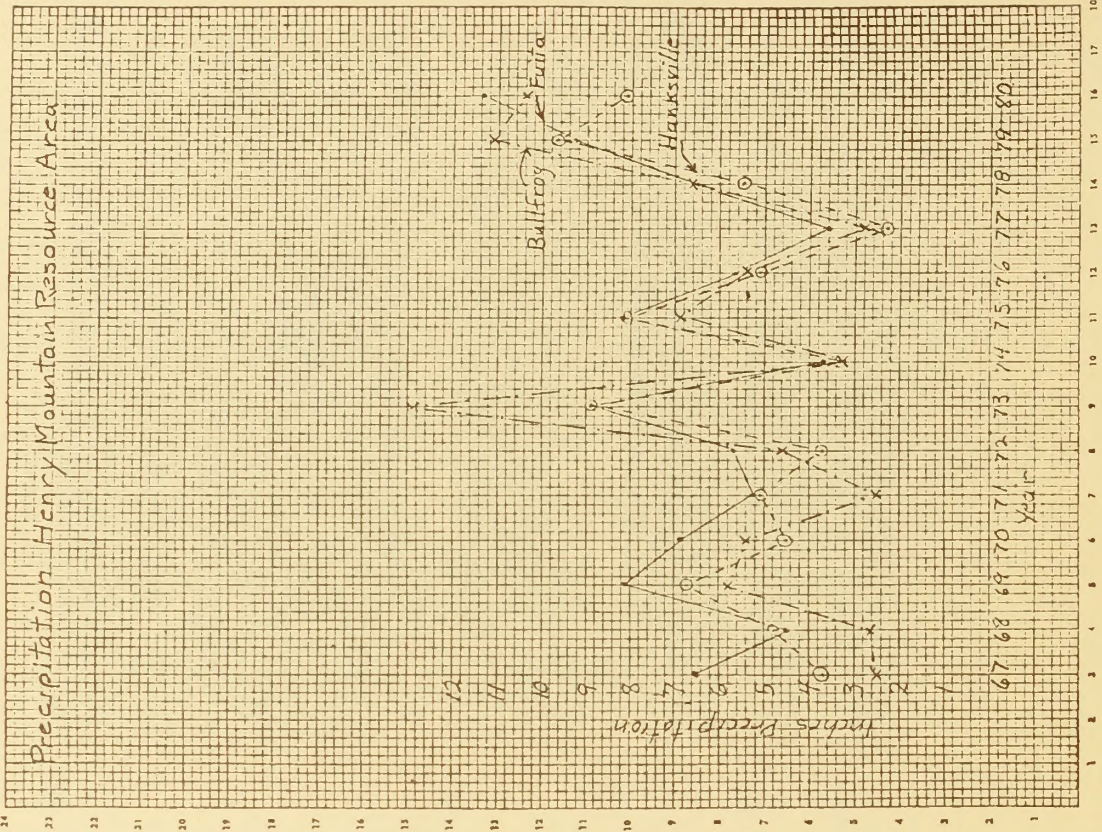
FROM: Henry Mountain Resource Area Ranchers Committee,  
Dwight Williams, Chairman *Dwight Williams*

SUBJECT: Ranchers Response To Henry Mountain Draft  
Environmental Impact Study

After reviewing the enclosed letter and study data collected by the Henry Mountain Resource Area Ranchers Committee concerning the BLM Draft EIS for the Henry Mountain Area, would you please respond to the Richfield BLM staff concerning the Draft EIS and Findings?

Comment Letter 40

Supplement I





Comment Letter 40

Supplement 2.

Comparison of Average Licensed Use Heavy Non-Fire Release Area  
Calculated by Two Methods

5-Year Average (1976-77 to 1980-81) and 5-Year Average (1976-77 to 1982-83)  
(From Table 3-13, Heavy Non-Fire Release Area)

Allocation	Active Preference AUMs	Table 3-13	% Preference	1976-77 to 1982-83 High and Low	% Pref
Blue Earth	4,598	1,963	43	2,161	47
Bullfrog	3,442	1,539	45	2,226	65
Clear Point	4,417	1,337	30	1,691	38
Cathedral	2,503*	1,035*	41	1,360*	54
Cedar Point	1,892	819	43	839	44
Cement Creek	332	335	101	333	100
Hartsville	6,000	2,499	42	2,898	47
Hatchet	1,021*	603*	59	599*	59
Nasty Flat	474	436	92	468	99
North Bend/					
Waltham	1,523	86	6	149	10
Reedell	2,594	1,391	54	1,960	76
Reckers Point	5,288	2,808	53	2,882	55
Red Lake	5,872	3,539	61	3,890	66
Sandy #1	973*	728*	75	844*	86
Sandy #2	2,228	1,509	68	1,257	56
Sandy #3	305*	184*	60	271*	89
Sandy #4	166	83	50	33	20
Sandy #5	1,500	950	63	978	65
Stark Creek	5,034	2,006	40	2,572	51
Thompson	2,853	1,244	43	1,626	57
Waltham	3,105*	1,518	49	1,810	58
Total	56,295	22,621	40	30,917	55

\* PPM administered based only on Capital Cost Method (see Supplement 1)

Comment Letter 40

Bullfrog Allocation Average Licensed Use Summary 1976-77 to 1982-83  
Active Preference = 3,442 AUMs

Licensed Use AUMs	Low Year	High Year
1976-1977	2,307	
1977-1978	53	2,307
1978-1979	2,024	2,024
1979-1980	1,849	1,849
1980-1981	2,537	2,537
1981-1982	2,413	2,413
1982-1983	2,636	2,636
		11,130 ÷ 5 = 2,226

5-Year Average Licensed Use = 2,226 AUMs = 65% Preference



## Comment Letter 40

Burn Point Allotment Average Licensed Use Summer 1976-77 To 1982-83  
Active Preference = 4,417 AUMs

	Low Year	High Year
1976-1977	1,979	1,899
1977-1978	357	2,456
1978-1979	1,407	-5 = 1,691
1979-1980	1,407	
1980-1981	1,764	
1981-1982	1,982	
1982-1983	1,899	

5-Year Average Licensed Use = 1,691 AUMs = 38% Preference



Contributed Allotment Licensed Use Summary 1976-77 to 1982-83  
 2,303 AUMs BLM  
 495 AUMs NPS

Active Preference = 2,098 AUMs

Licensed Use AUMs

1976-1977	1,573	
1977-1978	1,076	
1978-1979	2,102	High Year
1979-1980	1,038	Low Year
1980-1981	1,740	
1981-1982	1,941	
1982-1983	1,860	
	<u>11,860</u>	
	$8,190 \div 5 = 1,638$	

5-Year Average Licensed Use = 1,638 AUMs = 55% Preference  
 85% BLM = 1,340 AUMs = 54%  
 17% NPS = 278 AUMs

Present Cerebral Allotment Average Licensed Use Summary 1976-1982

Licensed Use AUMs

403 (High Year)

196 (Low Year)

333

333

333

333

333

233

Preference = 332 AUMs (1978-1983)

5-year average Licensed Use = 333 AUMs = 100.3% Preference  
 (1978-1983)



Comment Letter 40

Cedar Point Allotment Average Licensed Use Summary 1976-77 through 1982-83  
Active Preference = 1,892 AUMs

Period	Licensed Use AUMs	
	High Year	Low Year
1976-1977	1,656	878
1977-1978	500	718
1978-1979	878	718
1979-1980	718	938
1980-1981	718	942
1981-1982	938	4,194 ÷ 5 = 839
1982-1983	942	

5-Year Average Licensed Use = 839 AUMs = 44% Preference

Comment Letter 40

Hanksville Allotment Average Licensed Use Summary 1976-77 to 1982-83  
Active Preference = 6,000 AUMs

Period	Licensed Use AUMs	
	High Year	Low Year
1976-1977	3,449	
1977-1978	1,326	
1978-1979	2,818	2,818
1979-1980	3,196	3,196
1980-1981	2,229	2,224
1981-1982	3,044	3,044
1982-1983	2,960	2,960
		14,242 ÷ 5 = 2,848

5-Year Average Licensed Use = 2,848 AUMs = 47% Preference



Comment Letter 40

Noddy Flat Allotment Average Licensed Use Summary 1976-1982  
Active Preference = 474 AUMs

	Licensed Use AUMs	
	High Year	Low Year
1976	473	452
1977	314	472
1978	452	472
1979	472	472
1980	472	472
1981	472	472
1982	472	468

5-Year Average Licensed Use = 468 AUMs = 49% Preference

Comment Letter 40

Hector Allotment Average Licensed Use Summary 1976-77 to 1982-83  
Active Preference = 2,938 AUMs

	Licensed Use AUMs	
	High Year	Low Year
1976-1977	2,453	1,516
1977-1978	1,166	1,638
1978-1979	1,516	1,811
1979-1980	1,638	1,774
1980-1981	1,811	1,813
1981-1982	1,774	
1982-1983	1,813	

8,552 ÷ 5 = 1,710

5-Year Average Licensed Use = 1,710 AUMs = 58% Preference  
35% BLM = 599 AUMs = 59%  
65% NPS = 1,111 AUMs



## Comment Letter 40

Pennell Allotment Average Licensed Use Summary 1976-1982  
Active Preference = 2,594 AUM's

	High Year	Low Year
1976	2,277	1,860
1977	661	1,825
1978	1,860	2,045
1979	1,825	2,085
1980	2,045	<u>1,936</u>
1981	2,085	9,801 ÷ 5 = 1,960
1982	1,936	

5-Year Average Unimproved Value = 1,960 AUMs = 76% Preference



Allotment: Robbers Roost      Date: 2/2/83 402

Grazing Period	Permittee	Active Reference AUMs	Billing Period	Active Licensed Use AUMs	Total Active For Grazing R	% by 40
1976-1977	Cross S. Cattle Co.	5288	3/1/76-2/28/77	4200	4200 (79)	
1977-1978	Cross S. Cattle Co.	5288	3/1/77-2/28/78	2052 (Low)	2092 (30)	
1978-1979	Cross S. Cattle Co.	5288	3/1/78-2/28/79	3000	3000 (52)	
1979-1980	Cross S. Cattle Co.	5288	3/1/79-2/28/80	2400	2400	
1980-1981	Cross S. Cattle Co.	5288	3/1/80-2/28/81	2400	2400 (6)	
1981-1982	Cross S. Cattle Co.	5288	3/1/81-2/28/82	1704	2400 (6)	
1982-1983	Cross S. Cattle Co.	5288	3/1/82-2/28/83	2640	2640 (5280)	
7-year average = $\frac{3111 \text{ AUMs}}{7} = 590\%$						
5-year average = $\frac{2852 \text{ AUMs}}{5} = 570\%$						
5-year average from Draft ES = $\frac{2808 \text{ AUMs}}{5} = 561\%$						

Sandy #1 Allotment Average Licensed Use Summary 1976-77 to 1982-83  
 Active Reference = 1,206 AUMs  
 1976-77 to 1982-83  
 1978 AUMs 241  
 1980 AUMs 195

Licensed Use AUMs	High Year	Low Year
1,256	1976	1977
544	1977	1978
923	1978	1979
1,030	1979	1980
1,152	1980	1981
1,152	1981	1982
1,223	1982	1983
5,480	5	1,096

5 Year Average Licensed Use = 1,096 AUMs = 87% Inference  
 77% BLM = 844 AUMs = 86%  
 23% NPS = 252 AUMs



Comment Letter 40

Roths Allocation Licensed Use Summary 1976-77 to 1982-83  
Active Reference = 5,872 AUMs

Licensed Use AUMs		High Year	Low Year
1976-1977	4,388		
1978-1979	577		3,964
1979-1980	3,964		3,551
1980-1981	3,551		3,745
1981-1982	3,745		4,019
1982-1983	4,019		4,170
		19,449 - 5 = 3,890	

5-Year Average Licensed Use = 3,890 AUMs = 66% Reference

Comment Letter 40

Sandy #2 Allocation Average Licensed Use Summary 1976-77 to 1982-1983  
Active Reference = 2,228 AUMs

Licensed Use AUMs		High Year	Low Year
1976-1977	1,100		
1977-1978	750		1,100
1978-1979	1,357		750
1979-1980	363		1,357
1980-1981	850		850
1981-1982	2,227		2,227
1982-1983	2,227		2,227
		6,284 - 5 = 1,257	

5-Year Average Licensed Use = 1,257 AUMs = 56% Reference



Comment Letter 40

Sandy #3 Allotment Average Licensed Use Summary 1976-77 to 1982-83  
 305 AUMs 8M  
 Active Performance = 985 AUMs  
 680 AUMs NIS

	Licensed Use AUMs	
1976-1977	764	
1977-1978	98	Low Year
1978-1979	744	
1979-1980	1,106	High Year
1980-1981	908	
1981-1982	980	
1982-1983	980	
	4,376 ÷ 5 = 875	

5-Year Average Licensed Use = 875 AUMs = 89% Performance  
 31% BLM = 271 AUMs = 89%  
 69% NPS = 604 AUMs

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Sandy #1 Basin Allotment Average Licensed Use Summary 1976-1982  
 Active Performance = 166 AUMs

	Licensed Use AUMs	
1976	166	High Year
1977	0	Low Year
1978	0	
1979	0	
1980	0	
1981	166	
1982	0	
	166 ÷ 5 = 33 AUMs	

5-Year Average Licensed Use = 33 AUMs = 20% Performance



Comment Letter 40

Sewing Machine Allowment Average Licensed Use Summary 1976-77 To 1982-83  
Active Preference = 1,600 AUMs

	Licensed Use AUMs	Low Year	High Year
1976-1977	150		
1977-1978	1,168		1,168
1978-1979	1,605		1,432
1979-1980	1,432		435
1980-1981	435		1,315
1981-1982	1,315		641
1982-1983	641		
			<u>4,991</u>

4,991 ÷ 5 = 998

5 Year Average Licensed Use = 998 AUMs = 62% Preference

Comment Letter 40

Steele Butte Average Licensed Use Summary 1976-77 To 1982-83  
Active Preference = 5,034 AUMs

	Licensed Use AUMs	High Year	Low Year
1976-1977	4,894		1,788
1977-1978	1,788		2,204
1978-1979	2,204		2,327
1979-1980	1,090		2,182
1980-1981	2,327		<u>4,858</u>
1981-1982	2,182		13,359 ÷ 5 = 2,672
1982-1983	4,858		

5 Year Average Licensed Use = 2,672 AUMs = 53% Preference



Comment Letter 40

Trachyle Average Licensed Use Summary 1976-77 to 1982-83  
Active Preference = 2,853 AUMs

Licensed Use AUMs	Low Year	
	High Year	Low Year
1976-1977	1,794	
1977-1978	420	1,132
1978-1979	1,132	1,739
1979-1980	1,739	1,739
1980-1981	1,739	<u>1,728</u>
1981-1982	1,820	8,132 ÷ 5 = 1,626 AUMs
1982-1983	1,728	

5-Year Average Licensed Use = 1,626 AUMs = 57% Preference

Comment Letter 40

Wolfeport Allotment Average Licensed Use Summary 1976-77 to 1982-83  
Active Preference = 3,347 AUMs

Licensed Use AUMs	High Year	
	High Year	Low Year
1976-1977	3,262	
1977-1978	330	1,261
1978-1979	1,261	1,079
1979-1980	1,079	2,623
1980-1981	2,623	2,134
1981-1982	2,134	<u>2,634</u>
1982-1983	2,634	9,721 ÷ 5 = 1,946

5-Year Average Licensed Use = 1,946 AUMs = 58% Preference  
15% RUM = 1,410 AUMs = 57%  
7% NPS = 136 AUMs



Supplement 3

Sample Cow Weights from  
Dwight Williams Herd  
Fall of 1982

Cows on Scale	Weight
2	1895
1	735
1	880
1	905
1	765
1	635
2	1885
1	745
1	970
1	735
2	1000
1	1040
<u>15 cows</u>	<u>Average Weight 812 lbs.</u>

Supplement 3

Sample Cow Weights from  
Alexander Ranch, Teasdale, Utah

Date	Number Cows	Weight
11-30-78	2	1925
	1	920
	1	940
	1	955
	1	955
1-11-78	1	975
	3	2925
	1	780
	1	890
	1	890
1980	4	3885
	1	960
	1	665
	1	765
10-30-82	1	880
	1	880
11-3-82	5	4990
	2	1620
11-10-78	1	940
	2	1865
	1	820
	1	2770
	<u>34 cows</u>	<u>Average Weight 924 lbs.</u>



Supplement 4

Cross S cattle Co.  
MAINE COW SALES 1980-1982

DATE	WHERE SOLD	No. HEAD	TOTAL WEIGHT	LARGEST	SMALLEST	AVERAGE
Nov 19, '80	Valley Livestock	12	10150	525	790	846
FEB 25, '82	Delta	12	8160	770	630	680
MAR 11, '82	HALLS	13	10320			794
		31	27085			873
		1	725			725
THESE 45 HEAD WERE ALL TESTED PREGNANT AND HAD BEEN ON GRAIN SAGE FOR 90 DAYS						
Nov 6, '82	Gentry	13	8825			679
		6	3860			643
Dec 9, '82	Delta	10	7435	745	730	743
Dec 16, '82	Delta	14	10560			754
Dec 23, '82	Valley	10	6590	790	590	654
TOTALS		122	93670	925	590	708

Supplement 5

Sample Cow Weights  
From Jack King Ranch, 1982  
(Fall weights and Feed lot  
Weights at time of sale)

Cows on Scale	Weight
1	1175
1	910
1	815
3	2505
2	1815
2	2005
2	1705
1	840
1	775
1	900
1	840
1	1090
1	840
1	1005
1	980
1	960
1	910
8	7615
8	8410
1	910
1	870
1	930
1	1006
2	1585
1	860
2	1585
1	830
4	3720
1	990
53 COWS	Average weight 933 lbs.



# Comment Letter 40

Supplement 6

Feed Requirements of Pregnant Cows  
on Henry Mountain Winter Ranges  
--a comparison of BLM forage allocation levels  
and National Academy of Science (NRC) recommendations  
Verl Bagley MS Range Science USU Extension Service

BLM currently allows:

$$\frac{800 \text{ lbs./Month}}{30} = 26.7 \text{ lbs forage/day}$$

NRC Recommends (Mid 1/3 of pregnancy):

Dry Pregnant Cow weights	Feed/day lbs.	ME		TDN lbs
		Mcal		
772 lbs	12.2	10.8		6.6
882 lbs	13.4	11.9		7.3
992 lbs	14.8	13.0		7.9
Concentration				
		ME	TDN	
		Mcal/lb	%	
772 lbs	12.2	1.9		52
882 lbs	13.4	1.9		52
992 lbs	14.8	1.9		52

Now, using 26.7 lbs/day for 882 lb cow (ME and TDN) lets compare.  
(100% concentration)

26.7/13.4 = 199% or almost double feed required

or

13.4/26.7 = 50% of NRC values.

The ranchers also recognize that critics may charge that quality of desert forage may not be as high. SO,

$$\frac{11.9 \text{ Mcal ME}}{26.7} = .446 \text{ Mcal ME/lb (Basic requirement);}$$

$$\frac{7.3 \text{ lbs TDN}}{26.7} = 27.3\% \text{ TDN (Basic requirement).}$$

Now lets continue to pursue the quality issue and compare some feeds from NRC.

Alfalfa Mid bloom, 100% DM: ME = .90 Mcal/ lb of feed;  
TDN = 55%

Wheat Straw, 100% DM: ME = .79 Mcal / lb of feed;  
TDN = 48%

Galleta (curly grass) cured: ME = .595 Mcal/lb of feed;

# Comment Letter 40

No way can the range manager find any practical feed as low as to contain only .446 Mcal ME/lb or 27.3% TDN. With this thought in mind, realize that 800 lbs forage/AUM on winter range for a pregnant 882 lb. cow is unrealistically high.

Some researchers have contended that additional energy is required by animals on open desert range as compared to cattle on smaller and more productive pastures. This extra demand, it is suggested, is required for travel while foraging and going for water. K.M. Haustad and J.C. Malechek, in the July 1982 Journal of Range Management, suggest a 10% adjustment is reasonable.

SO,

$$13.4 \times .1 = 1.34$$

$$1.34 \text{ lbs} + 13.4 \text{ lbs} \times 30 \text{ days} = 442 \text{ lbs/AUM.}$$

BLM uses 800 lbs/ AUM



Supplement 7

FEED REQUIREMENTS FOR BEEF CATTLE WINTERING ON DESERT RANGES

by Nyle J. Matthews  
USU Area Livestock Specialist  
900 lb. Cow Average Requirement for Middle and Last Trimester of Pregnancy  
(National Academy of Sciences Requirements of Beef Cattle 1976)

Minimum Dry Matter (lbs.)	Protein (lbs.)	Net Energy For Maintenance (M cal)
*14.7 or (16.3 ADF)	.898	7.80

\*Requirements for 882 pound cow adjusted upward by 2% to get the 900 pound requirement.

Sample Diet:	Dry Matter	Protein	Net Energy (M cal)
Sand Dropseed	15%	.16	1.70
Nuttall Saltbush	25%	.37	1.91
Shadscale	10%	.15	.59
Galletta	50%	.57	3.85
TOTALS	19.5	1.25	8.05

Pounds of Air Dry Feed to Meet Energy Requirement:

19.5 # DM x 1.11 = 21.65 lbs. Air Dry Feed x 30 days = 649 lbs. of feed per A.V.M.

The 800-lb. allowance used by BLM would be in excess of these calculations by 23%. However, BLM used 1000 lbs. as average cow weight.

1000#	Adjusted	Adjusted	Actual	Robbins	Net.	S. Butte	Id.	N. Mex.	OSU	WSU	Union	CSU	Idaho	Utah	Wt.	Intake	1 -	Intake	Wt.	Intake	2 -	Intake	Wt.	Intake	3 -	Intake	Wt.	Intake	4 -	Intake	Wt.	Intake	5 -	Intake	Wt.	Intake	6 -	Intake	Wt.	Intake	7 -	Intake	Wt.	Intake	8 -	Intake	Wt.	Intake	9 -	Intake	Wt.	Intake	10 -	Intake	Wt.	Intake	11 -	Intake	Wt.	Intake	12 -	Intake	Wt.	Intake	13 -	Intake	Wt.	Intake	14 -	Intake	Wt.	Intake	15 -	Intake	Wt.	Intake	16 -	Intake	Wt.	Intake	17 -	Intake	Wt.	Intake	18 -	Intake	Wt.	Intake	19 -	Intake	Wt.	Intake	20 -	Intake	Wt.	Intake	21 -	Intake	Wt.	Intake	22 -	Intake	Wt.	Intake	23 -	Intake	Wt.	Intake	24 -	Intake	Wt.	Intake	25 -	Intake	Wt.	Intake	26 -	Intake	Wt.	Intake	27 -	Intake	Wt.	Intake	28 -	Intake	Wt.	Intake	29 -	Intake	Wt.	Intake	30 -	Intake	Wt.	Intake	31 -	Intake	Wt.	Intake	32 -	Intake	Wt.	Intake	33 -	Intake	Wt.	Intake	34 -	Intake	Wt.	Intake	35 -	Intake	Wt.	Intake	36 -	Intake	Wt.	Intake	37 -	Intake	Wt.	Intake	38 -	Intake	Wt.	Intake	39 -	Intake	Wt.	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Intake	83 -	Intake	Wt.	Intake	84 -	Intake	Wt.	Intake	85 -	Intake	Wt.	Intake	86 -	Intake	Wt.	Intake	87 -	Intake	Wt.	Intake	88 -	Intake	Wt.	Intake	89 -	Intake	Wt.	Intake	90 -	Intake	Wt.	Intake	91 -	Intake	Wt.	Intake	92 -	Intake	Wt.	Intake	93 -	Intake	Wt.	Intake	94 -	Intake	Wt.	Intake	95 -	Intake	Wt.	Intake	96 -	Intake	Wt.	Intake	97 -	Intake	Wt.	Intake	98 -	Intake	Wt.	Intake	99 -	Intake	Wt.	Intake	100 -	Intake	Wt.	Intake	101 -	Intake	Wt.	Intake	102 -	Intake	Wt.	Intake	103 -	Intake	Wt.	Intake	104 -	Intake	Wt.	Intake	105 -	Intake	Wt.	Intake	106 -	Intake	Wt.	Intake	107 -	Intake	Wt.	Intake	108 -	Intake	Wt.	Intake	109 -	Intake	Wt.	Intake	110 -	Intake	Wt.	Intake	111 -	Intake	Wt.	Intake	112 -	Intake	Wt.	Intake	113 -	Intake	Wt.	Intake	114 -	Intake	Wt.	Intake	115 -	Intake	Wt.	Intake	116 -	Intake	Wt.	Intake	117 -	Intake	Wt.	Intake	118 -	Intake	Wt.	Intake	119 -	Intake	Wt.	Intake	120 -	Intake	Wt.	Intake	121 -	Intake	Wt.	Intake	122 -	Intake	Wt.	Intake	123 -	Intake	Wt.	Intake	124 -	Intake	Wt.	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Intake	166 -	Intake	Wt.	Intake	167 -	Intake	Wt.	Intake	168 -	Intake	Wt.	Intake	169 -	Intake	Wt.	Intake	170 -	Intake	Wt.	Intake	171 -	Intake	Wt.	Intake	172 -	Intake	Wt.	Intake	173 -	Intake	Wt.	Intake	174 -	Intake	Wt.	Intake	175 -	Intake	Wt.	Intake	176 -	Intake	Wt.	Intake	177 -	Intake	Wt.	Intake	178 -	Intake	Wt.	Intake	179 -	Intake	Wt.	Intake	180 -	Intake	Wt.	Intake	181 -	Intake	Wt.	Intake	182 -	Intake	Wt.	Intake	183 -	Intake	Wt.	Intake	184 -	Intake	Wt.	Intake	185 -	Intake	Wt.	Intake	186 -	Intake	Wt.	Intake	187 -	Intake	Wt.	Intake	188 -	Intake	Wt.	Intake	189 -	Intake	Wt.	Intake	190 -	Intake	Wt.	Intake	191 -	Intake	Wt.	Intake	192 -	Intake	Wt.	Intake	193 -	Intake	Wt.	Intake	194 -	Intake	Wt.	Intake	195 -	Intake	Wt.	Intake	196 -	Intake	Wt.	Intake	197 -	Intake	Wt.	Intake	198 -	Intake	Wt.	Intake	199 -	Intake	Wt.	Intake	200 -	Intake	Wt.	Intake	201 -	Intake	Wt.	Intake	202 -	Intake	Wt.	Intake	203 -	Intake	Wt.	Intake	204 -	Intake	Wt.	Intake	205 -	Intake	Wt.	Intake	206 -	Intake	Wt.	Intake	207 -	Intake	Wt.	Intake	208 -	Intake	Wt.	Intake	209 -	Intake	Wt.	Intake	210 -	Intake	Wt.	Intake	211 -	Intake	Wt.	Intake	212 -	Intake	Wt.	Intake	213 -	Intake	Wt.	Intake	214 -	Intake	Wt.	Intake	215 -	Intake	Wt.	Intake	216 -	Intake	Wt.	Intake	217 -	Intake	Wt.	Intake	218 -	Intake	Wt.	Intake	219 -	Intake	Wt.	Intake	220 -	Intake	Wt.	Intake	221 -	Intake	Wt.	Intake	222 -	Intake	Wt.	Intake	223 -	Intake	Wt.	Intake	224 -	Intake	Wt.	Intake	225 -	Intake	Wt.	Intake	226 -	Intake	Wt.	Intake	227 -	Intake	Wt.	Intake	228 -	Intake	Wt.	Intake	229 -	Intake	Wt.	Intake	230 -	Intake	Wt.	Intake	231 -	Intake	Wt.	Intake	232 -	Intake	Wt.	Intake	233 -	Intake	Wt.	Intake	234 -	Intake	Wt.	Intake	235 -	Intake	Wt.	Intake	236 -	Intake	Wt.	Intake	237 -	Intake	Wt.	Intake	238 -	Intake	Wt.	Intake	239 -	Intake	Wt.	Intake	240 -	Intake	Wt.	Intake	241 -	Intake	Wt.	Intake	242 -	Intake	Wt.	Intake	243 -	Intake	Wt.	Intake	244 -	Intake	Wt.	Intake	245 -	Intake	Wt.	Intake	246 -	Intake	Wt.	Intake	247 -	Intake	Wt.	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Intake	289 -	Intake	Wt.	Intake	290 -	Intake	Wt.	Intake	291 -	Intake	Wt.	Intake	292 -	Intake	Wt.	Intake	293 -	Intake	Wt.	Intake	294 -	Intake	Wt.	Intake	295 -	Intake	Wt.	Intake	296 -	Intake	Wt.	Intake	297 -	Intake	Wt.	Intake	298 -	Intake	Wt.	Intake	299 -	Intake	Wt.	Intake	300 -	Intake	Wt.	Intake	301 -	Intake	Wt.	Intake	302 -	Intake	Wt.	Intake	303 -	Intake	Wt.	Intake	304 -	Intake	Wt.	Intake	305 -	Intake	Wt.	Intake	306 -	Intake	Wt.	Intake	307 -	Intake	Wt.	Intake	308 -	Intake	Wt.	Intake	309 -	Intake	Wt.	Intake	310 -	Intake	Wt.	Intake	311 -	Intake	Wt.	Intake	312 -	Intake	Wt.	Intake	313 -	Intake	Wt.	Intake	314 -	Intake	Wt.	Intake	315 -	Intake	Wt.	Intake	316 -	Intake	Wt.	Intake	317 -	Intake	Wt.	Intake	318 -	Intake	Wt.	Intake	319 -	Intake	Wt.	Intake	320 -	Intake	Wt.	Intake	321 -	Intake	Wt.	Intake	322 -	Intake	Wt.	Intake	323 -	Intake	Wt.	Intake	324 -	Intake	Wt.	Intake	325 -	Intake	Wt.	Intake	326 -	Intake	Wt.	Intake	327 -	Intake	Wt.	Intake	328 -	Intake	Wt.	Intake	329 -	Intake	Wt.	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	CSU	Union	WSU	OSU	N. Mex.	S. Butte	Nev.	Robbins	et al	Actual	Adjusted	Convers
Wt.	350	350	375	350	400	400	369	375	44	375	375	44
Intake	210	210	242	324	300	300	269	273	33	273	273	33
Wt.	250	250	200	250	250	250	238	250	33	250	250	33
Intake	150	150	164	140	190	190	194	204	33	204	204	33
Wt.	200	200	155	140	120	120	154	150	21	150	150	21
Intake	108	108	139	189	100	100	134	130	26	130	130	26
Wt.	240	240	200	180	150	150	192	190	26	190	190	26
Intake	129	129	165	243	115	115	163	161	17	161	161	17
Wt.	150	150	135	90	110	110	121	120	17	120	120	17
Intake	81	81	127	122	100	100	107	106	14	106	106	14
Wt.	100	100	85	75	60	60	80	80	14	80	80	14
Intake	54	54	92	122	80	80	87	87	14	87	87	14

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Forest Supervisors, Oregon NF's



United States  
Department of  
Agriculture

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ALM Conversion Factors

To

Forest Supervisors

On April 15, 1981

The issue of wildlife versus domestic livestock grazing is a major and growing conflict with a number of interested and involved parties: livestock industry, sportsmen groups, National Forests and Oregon State Department of Fish and Wildlife. The issue is identified in the Regional Plan and will be addressed in individual Forest Plans. The major area of contention is in Northeast Oregon on the Umatilla and Mallova-Whitman National Forests.

The question relates to allocation of available forage and specifically concerns conversion rates between the two kinds of animals; elk and cattle.

A review of research literature on feeding-forage requirement trials of the two animals shows a large variation in results. We must use a standard forage requirement conversion factor process in our ongoing Land Management Planning efforts. Therefore, Region 6 direction in this matter will be as shown in the enclosed draft Regional supplement which will be published as soon as possible.

In coming to this position, this material and the approach has been presented to and discussed with the involved National Forests as well as with groups such as Oregon-Washington Interagency Wildlife Committee, Oregon Rangeland Committee, Oregon Cattlemen's Association (Both Public Lands and Landowner Sportsmen Committees), Blue Mountain Resource Council and the Oregon Task Group for Coordinated Resource Management and Planning. These organizations represent a variety of agency and other-interest groups. In general terms, the response has been that the approach is acceptable, although specific individuals have concern about specific figures. Input was also requested from a number of western universities. No better information or methodology has been discovered during this public involvement process.

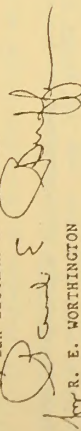
It must be recognized that this process mandates closer coordination between range and wildlife people in the field and requires considerable more monitoring of vegetation and habitat than we have accomplished in the past. Funding and manpower impacts are involved.

If and when better information is obtained, this direction will be modified. These figures are for broad Forest and Regional planning purposes. When specific implementation plans (such as CRP's or AMP's) are completed, locally developed and accepted figures may be used. In any case, the final determining factor is condition and trend of the habitat for domestic and/or wild animals.





A copy of the Oregon Department of Fish and Wildlife draft of October 1980, Dry Forage Allowance for Wintering Rocky Mountain Elk, by Dan Eastman is enclosed.



R. E. WORTHINGTON  
Regional Forester  
Enclosure

In determining capacities or stocking rates for elk and cattle in the Forest Planning Process, the following direction will apply.

1. Society for Range Management definitions will be used. These are: an animal unit (AU) is a 1000# mature cow, or its equivalent based on an average daily forage consumption of 26 pounds dry matter per day. An animal unit month (AUM) is the forage requirement for one month (26 pounds x 30.5 days = 800# (rounded)). This is already the Forest Service definition (FSM 2273, ID #21, June 19, 1980).

It must be recognized that these numbers are based on requirements of the animal (cow) during the grazing season, and, therefore, (normally) the lactating period. Some researchers feel that use of the 800# figure results in conservative initial stocking rates. If winter use of forage by livestock is the actual situation, a reduction in the 800# requirement is appropriate. Information obtained from the western universities indicates that 625# is adequate. We will use that figure until better information is obtained.

It must also be recognized that the figures shown by Eastman are based on winter confined feeding trials. Use of these figures may result in liberal initial stocking rates for elk. However, the many variable factors involved prohibit confirmation of this until follow-up monitoring is actually completed.

In most Forest Service planning it is appropriate to use these figures to determine conversion ratios since the key areas being used by both animals are used in the summer by cattle and in the winter by elk. This is not true in all situations and different factors must be used when that is so. Different equivalents must be calculated for spring, summer, or fall elk use.

The example following uses a typical or average elk herd composition for eastern Oregon. Oregon Department of Fish and Wildlife has developed specific objectives for bull/cow/calf ratios for each management area. These may be used when calculations are made for specific areas. However there has to be greater variation in herd composition than indicated by the Department proposals before significant change in factors results. Refer to Proposed Management Objectives and Related Benchmark Data for Oregon's Rocky Mountain Elk, November 1980.

2. It must be recognized and strongly emphasized in planning documents that any capacity or stocking rate numbers developed under this direction are initial figures which must be confirmed by on-the-ground monitoring of the effects of animal use on the specific habitat involved. This fact is of major importance in this issue!

3. It must be recognized that such initial capacity or stocking figures have major limitations because of many varying factors involved. These factors include: composition of vegetation, feeding habit of the animals, season of the year, forage preferences, topography, types and intensity of management, and annual variation in production. When this type of information is available or becomes available so that specific local conversion factors can be developed, they should be used.



4. In determining the initial and, subsequently, final stocking in numbers, consideration of limiting factors or areas is essential.

For instance, with livestock, stocking to proper use on key areas may mean that other areas are not used as much as they could or should be. We cannot justify overusing key areas to achieve use of other areas (i.e., overuse of stream bottoms to get use up on the hill sides). Some change in management is necessary before stocking is increased. In some areas, use on key areas will require redistribution of use or a reduction in stocking until changes in management occur.

In the case of wildlife, the year round habitat involving all ownerships must be considered. If winter range is the limiting factor within that habitat, numbers must be based on this area even though there is potential to support many more animals on the summer range. In some unusual situations, summer range may be the limiting factor.

5. Where the information exists and land allocations have not been changed in the planning process, actual stocking over a period of time and the resulting range condition and trend provide a much more accurate determination of numbers of animals that can be carried on any area.

6. It must be recognized that condition of the soil and vegetation and its trends towards improvement or deterioration are the ultimate determining factors in finalizing stocking rates for any kind or class of animal. This mandates considerable increase in our monitoring work!

7. The elk/livestock numbers problem lends itself well to the Coordinated Resource Management Planning Process. All interests, including all ownerships concerned, must be involved in resolving the issue. The practice of each agency or group going its own way cannot be justified. Monitoring use effects on the habitat must be a coordinated, agreed upon process. One of the early agreements which must be reached is: What is key winter range and what are its boundaries?

For a typical eastern Oregon wintering herd, the following figures will be used. This is adapted from the Oregon Department of Fish and Wildlife draft of October 1980, Dry Forage Allowance for Wintering Rocky Mountain Elk, by Dan Eastman.

Typical Herd (100 animals)	Average Weight	Daily Cons. per 100 wt.	Monthly Cons.	Herd Cons.
1 mature bull	630	1.8	346	346
3 yearling bulls	350	2.3	245	735
57 mature cows	500	2.0	305	17385
12 yearling cows	350	2.3	245	2940
27 calves	250	2.5	191	5157
100				26563

Avg. intake for Elk

$$26563 \div 100 = 266 \text{ \# / mo.}$$

$$266 \div 30.5 = 8.7 \text{ \# / day}$$

Where appropriate, age class conversions may be used as follows:

Summer cattle use: winter elk use

Summer AUM requirement: 800#/mo.  
 $800 \div 266 = 3 \text{ elk/AUM or } .33 \text{ AUM/elk}$   
 for the "typical" elk herd

or  
 for individual age classes

Mature bull:  $346 \div 800 = .43 \text{ AUM/bull} = 2.3 \text{ bulls/AUM}$   
 Mature cow:  $305 \div 800 = .38 \text{ AUM/cow} = 2.6 \text{ cows/AUM}$   
 Yearling:  $245 \div 800 = .31 \text{ AUM/yrig} = 3.2 \text{ yr1g/AUM}$   
 Calf:  $191 \div 800 = .24 \text{ AUM/calf} = 4.2 \text{ calves/AUM}$

Winter cattle use: winter elk use

Winter AUM requirement: 625#/mo.  
 $625 \div 266 = 2.3 \text{ elk/AUM or } .43 \text{ AUM/elk}$   
 for the "typical" elk herd

or  
 for individual age classes

Mature bull:  $346 \div 625 = .55 \text{ AUM/bull} = 1.8 \text{ bulls/AUM}$   
 Mature cow:  $305 \div 625 = .49 \text{ AUM/cow} = 2.0 \text{ cows/AUM}$   
 Yearling:  $245 \div 625 = .39 \text{ AUM/yrig} = 2.6 \text{ yr1g/AUM}$   
 Calf:  $191 \div 625 = .31 \text{ AUM/Calf} = 3.2 \text{ calves/AUM}$



A brief, general description of how this information should be used follows:

1. An elk herd unit is selected. This must relate to (be a subunit) of a State management area. The herd unit includes the year-round range, all ownerships, of the herd.
2. Determine what is the limiting seasonal forage supply. Assume that this is winter range for this example herd unit.
3. Delineate the boundaries of the key winter range.
4. Determine total annual forage production in pounds.
5. Determine amount of forage to be left after use (50% is a common figure used) for protection of the soil and maintenance of plant productivity. This is available forage.
6. Divide available forage in lbs. by 800 to find total AUM's available. If the area is used by livestock during the winter, use 625# to determine total AUM's available.
7. Determine allocation between elk and cattle.
8. Divide total AUM's for elk by .33 to find elk months (use .43 when AUM's are based on winter use by livestock - 625#/AUM). Divide elk months by number of months elk use this winter range to find number of elk. This is the initial capacity in number of elk (all age classes; typical eastern Oregon herd composition) for the herd unit.

When wintering herd compositions are known to be different than that shown as the average typical herd, the average herd conversion factor may be recomputed. However, for the bull/cow/calf ratios proposed by the Department, there is not enough difference to be significant. This is also necessary if the limiting seasonal forage supply occurs at another part of the year, such as summer.

9. Do the same for areas used by the cattle. In calculating stocking rates for livestock, the size and class of animal must be determined and the appropriate AUM factor applied. For instance, cows (even a cow and calf) have been commonly rated as 1 AUM. Cows may be smaller or larger than the 1000 lb. standard. Use .7 for a 700# yearling, .9 for a 900# cow, 1.3 for cow and calf, etc. Do not confuse numbers of animals (animal months) used for permit and billing purposes, and AUM's which are used to determine stocking levels! (Recognize that historical use records for livestock (until very recent years) are in paying animal months rather than actual AUM's).
10. Measure utilization by each class of animal and area which they actually use annually.
11. Measure trend in range condition at suitable time intervals.
12. Adjust stocking based on actual effects of the animals on the actual area and vegetation they use. If trend is down, correct distribution problems or reduce numbers, if trend is up and condition is satisfactory, consider increase in numbers.

Oregon Dept. Fish & Wildlife  
July, 1980

# DRY FORAGE ALLOWANCE FOR WINTERING ROCKY MOUNTAIN ELK

The rate of consumption of dry forage for an average Oregon Rocky Mtn. elk is 8.7# daily and 265# monthly based on sources of technical information.

The forage allowance for a standard AUM is based on a rate of consumption by a mature cow (cattle) of its equivalent of 26# daily and 800# monthly.

Elk equivalence per AUM is 3:1 on comparable diets. The ratio should be higher where appropriate because of:

1. dietary differences from use of different vegetative types or different preferences,
2. different patterns of animal distribution relative to cover, water, topography and lands allocated to grazing,
3. how much forage has been left for elk, and
4. timing and duration of livestock grazing.

The elk equivalence ratio does not simply change according to a different forage allowance per AUM. If a 1,000# forage allowance per AUM represents consumption, elk equivalence increases proportionately.  $(1,000\# \div 800\# = 1.25 \times 3 \text{ elk} = 3.75 \text{ elk:1 AUM})$ . If the added forage is an allowance for wastage and destruction by livestock, elk equivalence remains at the basic 3:1 ratio.

## PURPOSE

Elk equivalence per AUM has variously been reported at 1.2 (Idaho), 1.5 (Nevada), 2.0 (Oregon BLM), 2.2 (USFS-Reg. 6) and 2.4 (Utahella NF). How such conclusions were derived is unclear. Specifics of what classes of elk were considered and what forage allowances were used for the AUM were not described.

There is a general tendency for making comparisons of habitat use by elk and livestock. It is important to understand that:

1. elk forage use often is expressed in terms of equivalence (numbers equal to one) per AUM, and
2. the forage allowance for the AUM is not always 800#, and
3. any increased AUM forage allowance to include amounts wasted by livestock or destroyed by uncontrollable factors does not dictate a change in the minimum elk equivalence ratio of 3:1.



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**Example:**

Forest Allowance	800 = 1,000 - 200	Pounds (800 = 1,000) of dry forage representing one ACM.
Acres per ACM:	100 = 800 / 8	Number of acres required to supply the forage allowance for one month.
Annual Dry Matter Requirement (1,000 = cow consumption; 200 = replacement)	1,000 lbs.	
Dry forage daily:	100 = 1,000 / 10	

Equivalence: An expression of forage consumption or allowance for different classes of animals relative to the forage allowance for one AUM.

Tit: hundredweight (100#)

## CALCULATION

The elk forage allowance for this statement was calculated for a representative Rocky Mtn. elk herd with an average winter composition of 5 bulls (of which 80% are yearlings) and 40 calves (of which 17% are yearlings). The same procedure shall be followed if applied to an elk herd with a different composition.

Ass	Relative Number	Total per 100	Average Weight	Daily Consumption		Monthly Consumption (30.5)	
				Per CWT (100#)	Animal	Per Animal	Class
alls	5/100 C*	( 0.7 mat.	630#	x 1.8#	= 11.34#	346#	242#
	(	( 2.8 ylg.	350#	x 2.3#	= 8.05#	245#	687#
ws	100	( 57.0 mat.	500#	x 2.0#	= 10.00#	305#	17,385#
	(	( 12.0 ylg.	350#	x 2.3#	= 8.05#	245#	2,946#
ives	40/100 C*	27.5	250#	x 2.5#	= 6.25#	191#	5,242#
TALS	145	100	-	-	-	-	26,502#
ows				Amount per elk ( ÷ by 100) =			265#
				Amount per elk day ( ÷ by 30.5) =			8.7#
				Equivalence to 800# AUM ( ÷ by 265#) =			3.01#

## REFERENCES

- Anderson, L. D. and Denton, J. W. 1978. Determining Forage Consumption Rates for Big Game. Bureau of Land Management, USDI, Salmon, Idaho.
- Boll, L. A. 1958. Elk Nutrition - The Response of Elk Calves to Various Winter Diets Under Controlled Conditions. M.S. Thesis, University of Montana.
- Boyd, Ray J., 1970. Elk of the White River Plateau, Colorado. Colorado Division of Game, Fish & Parks, Big Game Investigations, Proj. W-38-R, Federal Aid to Wildlife Restoration. 126 pp.
- Bureau of Land Management, USDI, 1979. Instructions Memorandum No. NV-79-344.
- Dean, R. E., Thorne, T. E., and Yorgason, I. J. 1976. Weights of Rocky Mountain Elk. J. Mammalogy 57(1).
- Forest Service Region VI, USDA, 1979. Range Analysis and Management Handbook.
- Geis, A. F. 1954. The Food Requirements and Relative Digestibility of a Variety of Winter Diets Fed to Elk (Cervus canadensis nelsoni) Under Controlled Conditions. M.S. Thesis, Montana State University.
- Greer, Kenneth, 1978. Montana Department of Fish and Game Laboratory, Montana State University, Bozeman, Montana. Personal Communication to Loren Anderson, Bureau of Land Management, Salmon, Idaho.
- Helwig, L. L. 1957. The Value of Conifers as a Winter Feed for Elk (Cervus canadensis nelsoni), Determined Under Controlled Conditions. M.S. Thesis, University of Montana.
- Hungerford, C. R. 1952. The Food Consumption and Weight Response of Elk (Cervus canadensis nelsoni) Under Winter Conditions. M.S. Thesis, University of Montana.
- Jeeps, Nelson, and Thomas. Food Habits and Diet Quality of North American Elk. CRC Handbook Series in Nutrition of Food. pp. 221-241.
- Urie, Olaus J., 1951. The Elk of North America. Wildlife Management Institute. pp. 293-294.
- Nelson, Jack, 1980. Manuscript for Revised Elk of North America and personal communication via Dan Eastman, Portland Oregon.



Thomson, E. J. 1976. National Elk Refuge, Jackson Hole, Wyoming. Personal communication to Jeff Decker, Bureau of Land Management, Moulton, Wyoming.

Thomson, G. E. 1969. Nutritional Requirements of Elk for Reproduction. Federal Aid Report Project FW-3-R-16, WS-2, U.S.M. PS 47-71.

Thomson, G. E., Dean, R. E., and Heworth, W. G. 1976. Nutrition During Gestation in Relation to Successful Reproduction in Elk. Journal of Wildlife Management, 40(2):330-335.

Vavra, Dr. Martin, 1980. Eastern Oregon Agricultural Research Center, OSU. Personal communication to Dan Eastman, Oregon Department of Fish & Wildlife, Portland, Oregon.

Or, expressed another way, the equation for solving the total daily consumption of forage for the number of elk in each class in a herd of 100 elk is:

$$\begin{array}{rcl} \text{No. of Elk} & \times & \text{Consumption} \\ \text{in the Class} & \times & \text{in lbs. per} \\ & & \text{Hundredweight} \\ & & \text{Elk in Class} \\ & & \text{100} \\ \hline & & \text{Total lbs. Forage Consumed Daily} \\ & & = \text{by Number in the Elk Class} \end{array}$$

# POSITION STATEMENT CONCERNING SVIM AND ASSOCIATED FORAGE ALLOCATION MODELS

In an effort to standardize and improve range inventory techniques used within the agency, the USDI Bureau of Land Management (BLM) has developed a comprehensive procedure entitled "Soil-Vegetation Inventory Method" (SVIM). Inventory data concerning forage resources collected through SVIM are then used in a linear programming optimization model for allocating available forage on BLM lands to livestock, wildlife, and feral horses.

SVIM and the associated forage allocation models have been based upon fundamentally sound principles and theory. However, there are many assumptions made and numerical factors used in these procedures for which there is not a sound basis because information and data are lacking and/or because there are inherent weaknesses in the assumptions themselves.

## Position Statement

Utah State University Range Science Extension Faculty take the following position concerning the SVIM procedure and associated forage allocation models as they relate to livestock, wildlife, and feral horse management:

1. Because of weaknesses, room for unacceptable error, and lack of ability to specify confidence, SVIM and associated forage allocation models should not be used for establishing carrying capacities or stocking rates for any grazing allotment or management scheme.
2. In spite of the weaknesses, these procedures have merit and should be useful as tools in some decision-making situations when used very carefully with full understanding of weaknesses and implications. Advantageous uses of the procedures might be on a comparative basis looking at potential impacts, interactions, and tradeoffs of various management schemes including grazing systems, animal species combinations, livestock operations, and so forth.

## Discussion

The following points represent what we consider to be major criticisms and weaknesses of SVIM and the forage allocation models:

1. The forage allocation models used with SVIM require a substantial data base for any reasonable approximation of actual conditions. The modified sampling procedure used with SVIM by the BLM in Utah is basically an estimation procedure that does not provide a level of accuracy adequate for establishing specific carrying capacities or stocking rates. What sample data are gathered by the Utah BLM through SVIM usually come from one year's sampling and do not account for annual variation.

The level of sampling performed by the Utah BLM is generally too low even to account for observer error (sampling error). With only a few pinpoint samples taken and much extrapolation between, there is bound to be considerable



error and over-generalization within each community type. These sources of error multiplied over an entire Range Site can cause tremendous inaccuracy. The cumulative outcome for an entire allotment could conceivably produce an estimate with no better confidence than + or - 50 to 100 percent of the estimate.

Even if all "strata" and all "site write-up areas" were sampled strictly according to the standard SVM guidelines, the accuracy of the data would still be questionable. Double sampling techniques at the level of intensity used with SVM have low confidence levels with respect to precision. The problem is intensified in desert communities where the vegetation is sparse.

2. At this time, proper use factors (PUF) for individual plant species are estimates and should be regarded and used as such. The probable error in these estimates compounded with variations in growth and response within a species under different conditions (and probably different management systems) make their use for determining stocking rates questionable.

Proper use factors are very important influences on the stocking rates generated by the forage allocation model. Errors in these factors can create large errors in the total portion of available forage that is allocated to grazing animals.

3. In addition to variation in the amount of forage allowed, errors in proper use factors (as defined by the BLM) can also result in misallocation of forage to various animal types or uses. The forage allocation model used with SVM allocates forage according to dietary preferences. If "relative preference values" are not entered directly into the model, then the values are calculated from proper use factors. The relative values of proper use factors with respect to each other are more important than the actual values in this application.

Because actual relative dietary preference varies depending on availability or importance of each species in the plant community, "composition weighted relative preferences values" are used in the forage allocation model to help avoid biases in the preference values. Some degree of confidence in this weighting of preference values requires a higher degree of confidence in species composition data than is likely obtainable through the modified SVM approach used in Utah.

Even if relative preference values are determined from dietary studies and are entered into the model, distortions can occur when yearly averages are used. This is especially true for fluctuating forage sources such as annuals. SVM analyses in Utah up to this time ignore changes in relative dietary preferences during the various seasons. Seasonal changes in preference must be accounted for as the species composition and plant phenologies change.

Errors inherent in dietary studies must also be considered. These include errors in analysis of fecal botanical composition, especially when uncorrected for plant differences in digestibility.

Caution must be exercised in using dietary preference factors regardless of how they are developed because dietary overlaps between animal species control the amount of available forage that is actually utilized. Incorrect estimates of these dietary overlaps can restrict or expand stocking levels

inappropriately. The "dietary range factor" used in the allocation model recognizes error in the preference factors, but does not necessarily improve the results.

4. The general intake figure of 800 lbs/AUM of forage for cows is often considered to be too high for desert ranges or winter grazing due to such factors as comparatively low digestibility of the forage. Even when in good condition, forage on desert ranges is probably low in quality compared to many western rangelands and voluntary animal intake is reduced accordingly. There is much less known about intake figures for wildlife and horses. Because of the variability and uncertainty in forage intake values, their use in determining carrying capacities and in making forage allocations has been severely criticized.

5. Carrying capacity figures generated by use of "rule of thumb" type allowable use factors and forage intake values are generally conservative and are usually considered to take into account wildlife use, watershed protection, etc. If the allocation model is used or forage allocations are made to these resources, then less conservative figures can probably be used for allowable use factors and forage consumption factors.

6. The BLM in Utah currently automatically eliminates all acreage with greater than 50% slope, greater than 4 miles from water or with low forage production from consideration in determining carrying capacities. The basis for these exclusions is to reduce over-utilization of the better range areas where animals concentrate in preference to the less productive sites. The application of this approach depends on each individual allotment and management situation. There is probably no way to know what the level of reduction should be beforehand. Where management efforts are made to control animal distribution in any way, this approach breaks down. This is particularly true under intensive management systems and efforts. The best way to account for uneven distribution is to monitor utilization on key areas and adjust stocking and/or distribution efforts accordingly.

7. Range suitability, phenology adjustments, and average forage production adjustments are so highly subjective and potentially variable that they should be used very carefully, if at all, in formulas for determining grazing capacities. The modified SVM approach used by the BLM in Utah incorporates phenology and average forage production adjustments into the forage production and composition estimation process. This adds an additional level of subjectivity to the data that must be considered.

The SVM allocation model allows for trying various average forage production values in order to test for sensitivity to variable climatic conditions. This could be done to see what the implications of variation in climatic conditions and forage production might be. These kinds of sensitivity analyses represent potentially advantageous uses of forage allocation models.

8. The SVM procedure fails to consider the possible impacts that land-use history may have had on the present condition of the range. It is likely that tremendous changes in the vegetation had occurred prior to more intensive management and that short-term improvement of the range has been largely overshadowed by the long-term deterioration of the range condition.



9. Linear programming optimization models such as the forage allocation models used with SVIM by the BLM are useful tools in decision making. However, the inherent assumptions in linear programming must be recognized when interpreting the results. Linear programming assumes a linear relationship between inputs and outputs to the program model. The relationship between the total amount of forage and the number of animals that can graze that forage under semi-arid range situations is not linear due to such factors as travel distance (dependent on density and distribution of the vegetation, topography, location of water, etc.), forage quality, animal densities, animal type interactions, as well as a whole host of modern range management practices.

Also it must be realized that linear programming models (irrespective of inherent weaknesses in the models themselves) are only as good as the assumptions and data used in the model; some of the weaknesses of which were pointed out for SVIM above.

The linear programming technique used by the BLM for forage allocation involves a significant number of "constraints" and provides several options or models for application of the analysis to the data. This flexibility makes this technique useful, but also points out the impropriety of accepting the output of these models at face value. The approach being used by the BLM in Utah is a step in the right direction for bringing some science to the decisions being made. The application of SVIM, however, can only be properly accomplished in the presence of a great deal of judgement and certainty recognizing the shortcomings outlined in this statement.

#### 40.1

The average licensed use analyzed in this Final EIS has been adjusted. The period 1976-1982 was used to determine average licensed use, with high and low years dropped to more accurately reflect a true average of livestock use in the planning area. For information on precipitation, please refer to Appendix 3.

The 12-percent increase you propose is not analyzed or presented in the body of this Final EIS but is presented below. The estimated grazing capacity is also included in this table for comparison purposes.

Allotment	Average Use Plus 12% (AUMs)	Livestock Grazing Capacity (AUMs)
Blue Bench	2,420	2,749
Bullfrog	2,359 C	2,337 C
	134 S	233 S
Burr Point	1,894 C	2,951 C
	0 S	914 S
Cathedral	1,523	1,871
Cedar Point	940	1,294
Crescent Creek	373	181
Hanksville	3,190 C	6,511 C
	0 S	985 S
Hartnet	671	967
Nasty Flat	524	297
North Bench	50	306
Pennell	2,195 C	2,240 C
	0 S	109 S
Robbers Roost	3,228	6,902
Rockies	4,213 C	4,003 C
	143 S	249 S
Sandy 1	945	667
Sandy 2	1,408	715
Sandy 3	304	301
Sawmill Basin	37	64
Sewing Machine	1,118	2,681
Steele Butte	2,993	1,888
Trachyte	1,727 C	1,109 C
	94 S	475 S
Waterpocket	1,921 C	2,943 C
	141 S	262 S
Wild Horse	116	1,491

Based on the assumed 12-percent increase of average licensed use, the average small ranch would show an increase in net ranch income of \$249.00, up 3.5 percent from Alternative A; the medium net ranch income would increase by \$480.00, up 4.7 percent from Alternative A; and the large category would increase net ranch income by \$2,142.00, up 5.1 percent over Alternative A.



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- 40.2** Please refer to Letter Response 27.3.
- 40.3** For a discussion on the history of the Little Rockies unallotted area, refer to Oral Testimony Response 33.
- 40.4** To distribute forage on an allotment which may receive an increase of grazing preference, the procedures specified in 43 CFR 4110.3-1 must be followed. These procedures are stated as follows:  
1. "Additional forage permanently available for livestock grazing use shall first be allocated in satisfaction of grazing preferences to the permittee(s) or lessee(s) authorized to graze in the allotment in which the forage is available." There are two allotments in the Henry Mountain Planning Area that may receive increases and 4,315 AUMs of suspended preference that could be restored to the present permittees under this provision in those allotments. 2. "Additional forage permanently available for livestock grazing use over and above the preference(s) of the permittee(s) or lessee(s) in an allotment may be allocated in the following priority to: (1) permittee(s) or lessee(s) in proportion to their preferences or in proportion to the permittee's or lessee's contribution or efforts which resulted in increased forage production; or (2) Other qualified applicants...."
- 40.5** Your proposal will be taken into consideration. Such systems are now in practice on a few allotments, and indications are that these systems are in accordance with resource objectives and are satisfactory to permittees and BLM. Specific grazing systems will be developed for all allotments with permittees during development of AMPs.
- 40.6** Changes in existing grazing systems must receive BLM approval and meet management goals for soil, vegetation, wildlife, and livestock. Changes in grazing systems can be made whenever problems can be resolved by modifying the present system.  
When snow is available, stocking in areas remote from water is a good management practice, and BLM encourages permittees to utilize this practice whenever conditions permit.
- 40.7** Applications by permittees for increased fall/winter use and reduced spring use are reviewed on a case-by-case basis. This practice can lead to improved conditions on certain rangelands.
- 40.8** Reduction in livestock use during drought years is critical to maintain good rangeland and livestock conditions and would be encouraged by BLM.
- 40.9** Supplementation of livestock with energy or protein blocks requires BLM authorization (43 CFR 4120.2-2[c]). If approved, proper placement of supplemental blocks is one method of improving livestock distribution.
- 40.10** The initial impact analysis was based solely on the current rangeland suitability for livestock and bison use. However, under Alternatives C, D, and E, the long-term impact analysis also

## Response Letter 40

- 40.10 (cont)** considers how many additional AUMs would be made available from proposed rangeland improvement projects (see Table 2-4). Rangeland suitability will be field checked with permittees. Forage allocations will be based on grazing capacity at the time rangeland improvements are installed and functioning.
- 40.11** Please refer to Letter Response 35.3. Also, refer to Figure 2 in Appendix 3.
- 40.12** BLM agrees that livestock use forage in areas determined unsuitable. However, livestock forage allocation and livestock use in unsuitable areas has resulted in overutilization on more suitable areas. To prevent this situation from occurring, forage on unsuitable areas was not allocated to livestock or bison. Also, see Letter Response 30.1.  
BLM's assumptions on suitability/unsuitability of range are well supported by contemporary range management literature (Anderson, 1982; Arizona Interagency Range Committee, 1972; Brady, 1974; Cook, 1966; Heady, 1975; Herbel and Nelson, 1966; Johnson, 1966; Johnstone-Wallace and Kennedy, 1944; Marston, 1952; Odum, 1971; Osborn, 1956; Osuji, 1974; Packer, 1953; and Stoddart et al., 1975). BLM's position is that it is up to the permittee to demonstrate that specific circumstances or management efforts warrant the modification of suitability criteria.
- 40.13** Please refer to Letter Response 40.12.
- 40.14** BLM has increased transect studies in existing key areas; your suggestion to use the species frequency method along with existing trend study plots for the Henry Mountain Planning Area will be considered. This method is being used on some areas of the Richfield District and has merit for some vegetation growth forms.  
Your suggestion for collection of trend data from areas not grazed by livestock and bison is also good. BLM made studies of such areas as part of the soil-vegetation inventory. These areas were used for comparison purposes to determine ecological condition; with followup, studies of these areas will assist in evaluating trend in rangeland condition. Twenty-seven such sites have been established throughout the planning area.  
Please refer to the second paragraph of Oral Testimony Response 16 and Oral Testimony Response 49 regarding the number and placement of trend study plots. Plots are photographed and inventoried to evaluate plant cover and composition; in addition, a general background photograph of the area is taken from a permanently marked photo point. Supplemental information on plant composition, cover, vigor, and utilization, etc., for the area is also collected by transect sampling and programmed site write-up forms. These methods have been used and accepted by range scientists and ecologists for many years and offer a practical means of analyzing rangeland condition.  
Statistical methods are applied in sampling vegetation insofar as economically practical. The soil-vegetation inventory was such an attempt.



40.15 Please refer to Letter Response 34.5.

40.16 Please refer to Letter Response 35.3.

40.17 Livestock permittees will be given a share of increases in forage production resulting from management and rangeland improvements, including land treatments. The proportion of the share given will be based on the amount of time or funds invested by the individual permittee.

When a grazing permit is lost due to default, it could be handled under procedures specified in Letter Response 40.4. In the case that an agreement is not reached and there are existing applications for such a permit, 43 CFR 4110.5(a)-(f) provides for allocation of grazing use based on the following: (1) historical use of the public lands; (2) proper rangeland management; (3) general needs of the applicants' livestock operations; and (4) other factors.

Feb 26, 1983

To: Don Pendleton and all other BLM personnel concerned,

I, Owen L. Albrecht, Hanksville Utah: resident for thirty-two years and permittee in the Blue Bench Allotment. Do not agree with all plans and proposals pertaining to the Environmental Impact Study. I feel they are not up to date. The present conditions of the range are far better than the study shows. In the Blue Bench allotment, every test plot has improved since the last study in 1980.

Glenn Patterson, Terry Albrecht and myself inspected each of the seven test plots and took photos of each plot. We found each one greatly improved since the last study, even with five and a half months of cattle grazing in the area. All plants showed new foliage and plenty of growth. Compared with the study in 1980 the plots were doing extremely well. I would be more than happy to go over these photos with you at anytime.

The largest foliage improvement is shown in the allotments that have had the heaviest use in the past 32 years. With only 50% of the allotment being used by livestock due to the distribution and not being easily accessible. Areas showing the most improvement were areas used the heaviest. Areas that animals cannot reach live water and only accessible when snow and rain water are available, showed to be in the poorest condition of all the range in the allotment. For example: Between Sand Seep and Bert Avery Seep. (Cattle trails from Bert Avery Seep North and from Sand Seep South, across the big swale between both waters.) In the middle of the swale there is a 1/4 mile strip that cattle can't reach very easy. You can see this area hardly has any Indian rice grass, curly grass or any good feed. On both sides you can see this area for miles, because there is scarce forage in this area, except for a few weeds which is poor feed. On both sides where the cattle can reach the range is improving every year. In the washes there is forage growing and filling the washes, keeping erosion down. With the amount of rain fall we have on this allotment, there is very good cover on most areas where the soil is good enough to grow plants.

In 1980 and other years when the test plots were read, we were forced to rest 2 of the 3 pastures in the spring May 1 thru June 1, forcing all cattle in one pasture. Making the area very heavily used. We were forced to use the coaly pasture, which is not big enough to handle the cattle for that amount of time. Even under these conditions it showed an increase in foliage every year. Even following the drought of the mid 70's. Now that we are using 2 pastures and resting 1, the range is improving much faster and this is by letting cattle scatter over more range. If the old range lines were used and the cattle permitted in the Hanksville allotment as they were before the new allotments were formed, the Blue Bench allotment would be recommending an increase as in the Hanksville allotment. When the allotments were first made up by Ken Draw and other BLM personnel, they told us permittees that if we signed the paper, and if things did not work out the FIM would be flexible and cattle or lines could be changed. But now you say the line is law and you cannot change them, right or wrong without a very permittee okay, which is not the way it was set up at the beginning.

41.1



(2 of 3)

The Hanksville allotment received 1/3 of the Blue Bench allotment area, also 1/3 of the cattle permitted in the Hanksville allotment were put in the Blue Bench allotment. My permit was written "Hanksville Cattle Allotment." I recommend that the line goes as it used to, up Bull Creek to the Mountain, leaving Dug Out in the Blue Bench allotment. Then we could all have an increase. There is a lot of use in the Blue Bench that is not permitted. For example: There is no fence between allotments allowing cattle to come in our allotment from three sides. On the West end cattle can come and use all of Sandy to Cainsville, both winter and summer that are not permitted. You can ride up Highway 24 almost any day during the summer and see cattle on our allotment without permits there. On the Northwest end the fence is the river. Between allotments cattle come from the east middle desert allotment come to the river to water, they cross over to our allotment to graze because it is more exposable than going back to their allotment. There is no fences between private property and allotments in Cainsville. Livestock are allowed to go in allotment and back, at anytime of the year, as they wish, with no control.

On the South side there is no fence between our allotment and the Henry Mountains. In the fall when cattle drift off the mountain they come into our allotment. They stay there until they are gathered, which is whenever it is handy for the owners. This also depends on how the range conditions are. This gives our allotment more percent use, 50% higher than the impact and BLM records show. Still under these conditions our allotment is improving.

How can the range managers make a recommendation to cut permittees using this range when conditions of this sort exist? People hold permits but they never try to help on the range improvements, for instance, on water development, fences and many other things. While people using the permits do all the maintenance and share the costs.

In Hanksville and Cainsville you can drive thru and tell the active permit users from the non-active permit users. The permittees that use their permits take good care of their property, but those who take non-use let their property grow up in weeds, letting their property go down hill. Causing lost income to owners and lost county taxes. Hurting everyone concerned financially. Wayne County's main income depends on the range and permittees. The people using the range having their lives savings tied up in permits and livestock. These are the people most interested in keeping the range in the best condition possible. Helping everyone economically, protecting their own investments. I can see through my experience on the range for 32 years, how the range is improving year after year. We have BLM personnel and other government employees going out over the range only one time, where they can drive easily, making one time appraisals, then making recommendations, saying and doing things which are not always right, not considering whether the range is in a drought or how much use has been made on it or what the real over all condition is or what everyone concerned should be doing to make conditions better. If the BLM personnel and range users could look over and work out problems together, everyone would be better off. But the BLM personnel think all stockmen and range users are all criminals and cannot be trusted. They (the BLM) exercise their authority whether they are right or wrong.

(3 of 3)

I recommend that as long as the range is improving the way it is, we use the range at present rate or more. If the range conditions tend to go down we should make adjustments at that time. According to use and conditions. If drought comes again and the range looks bad, whether or not it has any use, Short term trends should not be lasting decisions for years to come. They are not always correct.

The test plots are all in a three mile radius, except 1 in point pasture. The allotment is 14 miles long and 16 miles wide: Sweet Water, Maiden Water, Sand Sheep, Lost Spring, Oak Creek, Cedar Creek, Oak Patch, Table Mt. area, Blue Valley and Cainsville Mesa, which takes in most of our allotment. It has no test plots. Most of these areas have very little, if any use of cattle permitted in the Blue Bench allotment.

There are many more deer and bison in the allotment that are not shown on the study. In Feb, I personally counted 48 deer, when driving to Lost Spring.

I feel that conditions of range and range improvements on the entire allotments should be tested by qualified and experienced personnel. With both experienced cattlemen and BLM personnel working together, all problems could be solved in an agreeable manner.

If the Blue Bench allotment is cut, some of us stock men that are already in financial stress will not be able to handle the cut and stay in business. For these reasons and many more. I feel this study is not sufficient enough to make any long term adjustments.

Thank you for your consideration in this extremely important matter.

Owen L. Albrecht  
Box 5  
Hanksville Utah, 84724



Response Letter 41

41.1 If permittees in Blue Bench and Hanksville Allotments could agree on a different boundary, BLM would honor their agreement. However, because the present boundaries have been in existence for an extended period of time, it would not be proper to change boundaries without the agreement of both parties involved or unless a change would help achieve management goals.

Comment Letter 42

February 26, 1983

Mr. Donald L. Pendleton  
District Manager  
U.S. Department of Interior  
Bureau of Land Management  
150 East 900 North  
Richfield, UT 84701

Dear Mr. Pendleton:

I am writing in reference to the Henry Mountain Environmental Impact Statement issued October, 1982. I am a permittee that has grazing privileges within the boundaries of the Henry Mountain Environmental Impact Statement. I am in support of the findings which have been compiled by the Henry Mountain Resource Area Ranchers Committee, Dwight Williams, Chairman. These findings encourage the adoption or changes to the following issues:

42.1

1. The sample period used to estimate grazing average actual use rates: These findings took into consideration the year 1977 which many cattle were not grazed due to the drought of that year.

42.2

2. The weight of cows and buffalo used in determining forage allowed per AUM. The statement used 1,000 pound cow as their forage allotted for cow AUM. The average weight of 213 animals sold during fall sales of cows moving off summer ranges which are higher in TDN than BLM winter ranges weighed 859 pounds. That is a difference in 141 pounds over what BLM used for their weight in allocating forage. Also those cows are probably heavier at that time of year than any other time during the year.

42.3

3. The number or lack of trend plots on the allotments: Trend plots are sometimes misrepresentative because of their locations which is one reason forage allocations can be off. Trend plots too close to water, located on cattle driveways and other places do not show an accurate forage picture. More help with locating new trend plots and ranchers input establishing these plots would make a better working relationship between BLM and stockmen.

42.4

4. Utilization of forage on unallotted areas: This stockman wonders why there is any unallotted areas that is suitable for grazing. If any range has any suitable AUM's, they should be allotted for grazing.



Mr. Donald L. Pendleton  
Page Two

42.5

5. The use of SVM data even though the SVM approach is no longer to be used by the BLM to establish carrying capacities. The BLM has determined the grazing capacity of some allotments without the establishment of any trend plots on these allotments. The only way BLM could come up with a grazing number without these trend plots is by the SVM data even though the BLM is no longer to use this method to establish carry capacities. This is a very unfair and illegal act made by the BLM.

42.6

6. The lack of statistical error calculations for the data collected. Error has been found in some of the grazing actual use in this EIS.

After studying this EIS, I recommend NO CUTS be made until a more accurate evaluation can be made to the amount of forage available. I also recommend an upward adjustment of cattle numbers when the forage allocations are there. I also recommend some development to increase grazing numbers wherever possible. For instance, water development, reseeding, and distribution facilities such as fences, trails, roads, and etc. be implemented. I also recommend allotments that need improvement be put on top priority for the funds to improve grazing.

Sincerely,



Richard L. Pace  
PACE RANCHES INC.  
Teesdale, Utah 84773

42.1

Please refer to Oral Testimony Response 23.

42.2

Please refer to Letter Response 27.3.

42.3

Trend study plots are representative of the sites on which they are established. The sites on which they are established may or may not be representative of vegetation types or key areas which contribute a substantial amount of an allotment's grazing capacity.

However, trend study plots not representative of key areas or which are close to water or stock trails still serve as indicators of change in rangeland condition on those specific areas and, therefore, serve a valid purpose. When trend study data are interpreted, the locations of the studies are taken into consideration. For example, trend study data recorded in riparian zones are interpreted differently than data recorded in a shadscale/galleta grass area. During December 1982, the Henry Mountain Resource Area Permittees, Committee and Dr. Jim Bowns (Southern Utah State College) reviewed most of the trend study plot data and the interpretations made of these data. Refer to Letter Comments and Responses 25.

BLM encourages input and participation from permittees and other interested parties in establishment of new trend study plots and in interpretation of data gathered from these plots.

42.4

Refer to Oral Testimony Response 33 and Letter Response 34.5.

42.5

The soil-vegetation inventory data are authorized for analysis purposes on the Henry Mountain Planning Area (see Appendix 6). BLM does not intend to base grazing use adjustments on data obtained from one-time inventories; however, where past monitoring and grazing studies indicate a change in grazing use is necessary and the soil-vegetation inventory data support that change, grazing levels will be adjusted. On allotments where trend study plots and utilization studies have not been adequate, a monitoring program will be initiated to collect additional data. Please see the Monitoring Program section, Chapter 2 in this Final EIS, for a further discussion. Also, see Table 3-3 for a list of allotments that have adequate data to adjust stocking levels to grazing capacity.

42.6

Average licensed use has been corrected in this Final EIS (see Oral Testimony Response 23). This adjustment resulted in a 7-percent increase in grazing use. Table 3-13 indicates these changes by allotment.



## Comment Letter 43

February 24, 1983

Donald L. Pendleton, District Manager  
Richfield District Office  
Bureau of Land Management  
1-0 East 900 South  
Richfield, Utah 84701

Dear Mr. Pendleton,

This letter is a protest to the Henry Mountain Grazing Environmental Impact Statement. I have looked over the proposals in the document and I attended the public hearing which was held in Loa in December.

I am opposed to the proposal because I don't think enough trend studies were done on certain allotments to back up grazing cuts proposed. Increasing the number of the buffalo herd will result in a loss of forage which would be available for cattle grazing. I feel there should be elimination or a reduction of the buffalo herd that now exists on the Henry Mountains.

The elimination of cattle grazing on the Henry Mountains would be a drastic economic blow to the permittees and to the economy of Wayne County which is already in a depressed state.

Concerning the allotment which I am a permittee of, the Hartnet Allotment, I am opposed to the reduction of AJM's because of the lack of plot studies and evidence of overuse.

I would propose that the Hartnet allotment, as well as other allotments in Capital Reef National Park, be removed from the classification of custodial to the classification of improve.

I would propose that the Henry Mountain Planning Area be managed for optimum livestock production and I am in total agreement with the proposals submitted by the Cattlemen of the Henry Mountain Planning Area.

Sincerely,

*Phillip G. Pace*  
Phillip G. Pace  
Pace Ranches, Inc.  
Teasdale, Utah 84773

43.1

43.2

## Response Letter 43

43.1

There are nine trend study plots on the Hartnet Allotment and 13 years of data for each one of these plots (see Table 1, Appendix 3). Also, please refer to Letter Response 35.3.

43.2

Please refer to Oral Testimony Response 1.



# Comment Letter 44

## Comment Letter 44

February 26, 1983



Mr. Don Dendleton  
District Manager BLM  
150 East 900 North  
Richfield, Utah 84701

Dear Mr. Dendleton:

Following are my comments on the Henrys Mountain Draft Environmental Analysis Impact Statement.

Regarding the proposed reduction of 48% active preference on the Deer Joint allotment under preferred alternative E, I feel this is unacceptable, unfair and unjust. I feel the DEIS vegetation data is out even I have seen livestock in this area of the Henry Mts. for 56 years and in that time have never seen as much feed for livestock as is there at this time.

When we went onto the rotation management plan the BLM promised us new reservoirs and pipeline construction. Had this been done much more of this range could be grazed and much more feed utilized.

I feel the permittees who voluntarily decreased the number of their livestock to improve

range conditions are now being penalized for going along with this management plan. I feel if AUM's are taken from this range the affected ranchers should receive AUM's in those allotments reserving and increase in AUM's. Or the ranchers should be paid for the loss of their range rights. These range rights are needed for our livelihood.

Therefore I find the Environmental Analysis Impact Statement to be unacceptable and unjust. I recommend a 5 year study be made in cooperation with the livestock permittees before further action is done.

Sincerely,

Otto Bruckhoff

Otto Bruckhoff

PO Box 7

Richfield, Utah 84701



Response Letter 44

44.1

Please refer to Letter Response 40.4. BLM is not responsible for paying permittees for loss of "range rights" (grazing privileges). BLM is responsible for enhancing "...the productivity of the public rangelands by preventing overgrazing and soil deterioration" (43 CFR 4100.0-2). When authorized grazing use exceeds the amount of forage available for livestock grazing within an allotment, BLM reduces livestock grazing in accordance with CFR 4110.3-2.

Comment Letter 45

Dear Sir

I run cows on Burn Point and Cedar Point allotments this is on 2 off the allotment where the EIS was run the Burn Point was supposed to have a cut according to the study on most of the alternatives. The people that made these studies must have done all there studying from the road out of a pickup. The reason I say this is because I have been around 5 or 8 different Forest Rangers & BLM Managers and if they can't get to the range in a pickup or car they don't never look at it what they see from the road is the way it is.

On The Burn Point the only place there is any water is the East Lake Reservoir that is right on the Main Highway. When you run 200 cows are what ever run on this allotment and they are all right along the Highway by the Reservoir the range does look bad try it you get 200 yard away and the



Comment Letter 45

feed has not hardly been touched  
last fall they ~~had~~ built  
5 new ponds on the Burr point  
allotment 4" of them were full  
of water. Now there is cows on  
here where there has never been  
cows before the feed is tall  
enough that when a cow is  
laying down you can't even see  
her.

The way the Burr point is right  
know with the new ponds and  
the feed it should have a 100%  
increase ~~and the feed will~~

The people who run these studies  
must have been from down town  
~~Chicago~~ Chicago because they said  
the range was depleted. Half of  
these people would not know a  
sage brush from a cedar tree  
and there are the ~~set~~ ones who  
want to run the whole  
United States Government they  
~~don't~~ want to come here and  
tell the ranchers & farmers how  
they are supposed to run  
their livestock and what to  
plant and ~~they~~ hope to make a  
cross of all the land.

Comment Letter 45

Because they read in a book what  
some doctor wrote that was from  
New York. The book does not know  
the problems and the way the water  
the book doesn't know either. Because  
he has never tried raising a cow  
sheep horse or a crop all they  
think is they got to the store and  
buy a beef steak with pork  
turkey ~~and~~ (etc) and think all  
there is to it.

I know one of the ladies ~~who~~ who  
on these studies. I don't think she  
is smart enough to know if she  
is a man or woman and we have  
to listen to what she says & think  
and are supposed to go along with  
the ideas she has proposed.

The Big Game that is on Henry  
Mountain E15 is just like the  
rest of the Big game in the state  
the feed has not got one thing to  
do with the game animals it's the  
people that manage them the reason  
there is no deer is the Mountain Lion  
the Coyote the Bobcat and the  
70,000 hunters, the ~~hunters~~ ~~that~~ fight some  
need more money and more men' pickup



one time not to long ago you could  
kill 7 deer legal with all the  
special permits times that by  
35000 and what do you get not  
a starved to death deer.  
~~It is an~~ That is an example  
for the low number in the Mule  
they heard on this E's study area  
there is enough coyotes and corgone  
& Bobcats to eat every Fawn deer  
on this area if they didn't have  
calves sheep & cows to eat  
the people that ~~to~~ does these  
studies have never seen a coyote  
in ~~action~~ action they think they  
kill the same & the sick well  
I will tell you they are just like  
a man they kill the very best  
and when they get full they  
kill for fun = if you want proof  
turn 25 sick ~~over~~ and 25 fat furb  
loose and see what furs  
the fish and same and ~~the~~ <sup>the</sup> ~~lawson's~~  
are just alike they think the people  
that have to make a living off  
the land don't know any thing  
all the people that work for  
the fish & same ~~are~~ <sup>are</sup> Have all

Been Brain Wash before they were hired  
and the proof is that every thing  
they got any thing to do with is on  
the endanger specific list the  
environmentalist is just as bad they  
want to save a spider & some little  
snake, maybe if they had to eat there  
thing it would be different ~~the~~  
~~the~~ ~~the~~ ~~the~~  
when you get all the livestock out  
of the Public land what are you  
people going to do for a job  
maybe you have never stopped and  
thought about who pays your wages  
furnishes you now & where drive pile  
and your gas and a brand new Building  
~~the~~ if the livestock is all cut  
off there will be a lot of you  
boys & girls go with them  
when you are all unemployed you  
might stop and think about some  
thing but cutting ~~and~~ the grazing but  
that will be to late know is the  
time for you to try and help  
the ranchers a little bit instead  
of being against every thing the  
try to do if you people and the  
livestock men could work together



Comment Letter 45

Some thing could be worked out but you people always have to have the say what's right or wrong you always get your own way but maybe this time it will be a little different. Since the ponds here been built on Burr Point it has opened up twice as much range as there was before. I protest any cuts that are being made on Burr Point.

Rancho, Texas

Comment Letter 46

Antimony, Utah 84712  
Dec 16, 1982

Dear Sir, I'm writing about the EIS that's going to go into effect. I'm concerned because I have reason to think that with the cooperation of the BLM, Burr Point Attainment really could have an increase instead of a decrease.

I just purchased 53 acres and some state sections on Burr Point.

Dad and Randy have had permit on Burr Point for 4 years now, also Jack and Stanton. Please have had permit there for almost 6 years.

And I live right with them enough to know that there is certainly no lack of feed, what there is lack of is someone who will listen to a little reason about developing a water system, so the cattle don't concentrate on just one little portion of ground. Last summer there were four ponds built and one repaired. This should really help out the situation a lot. But there is still miles and miles of feed that can't be touched by anything. Because of lack of water. All I know it isn't because there isn't no water there, because there is live personally seen it myself.



Comment Letter 46

All it needs is to be developed. I'm sure the permittees would develop their own water if they didn't have to go through all the red tape. I'm only 25 years old and I've been born and raised in Utah, and I don't see any reason why anyone who has permit anywhere couldn't manage it themselves to see that it isn't grazed to a barren plain. I just don't think that any former or rancher would let it go that far. Because they would only be hurting themselves. I really don't think we need the Sierra Club. A lot of those organizations, telling us how to run our lands, most of those people, probably don't even know where the beef that they eat comes from. I'm sure they all have to eat just the same as you and I do. And they probably even go to McDonalds and get a hamburger once in a while.

I think that is the type of people who should go back to New York City, where they belong, and let the people who love Utah enough to live here take care of their own problems. I realize each person has his own opinion about things, but I don't think

Comment Letter 46

people from the Eastern United States know as much about it out here in the west, as the citizens who live here do.

I have one question when the Range studies were done, were their any Ranchers or permittees allowed to go out to the study plots and voice their opinion? I realize that Education is important but I think even us Uneducated Ranchers can see when a cow or sheep is doing good or poor. We practically live with them.

I think there is no better place to raise a family than out in the Country. And I'm sure their or other people who will agree and some who won't. But if the Farmers and Ranchers keep getting pushed around, it may be possible that the Environmentalists might be the first to starve to death.

I agree with Sec. James Watt, I think if America is going to move forward we've got to start using our Resources to the fullest. And we can still maintain our own beauty and keep our Natural Resources, without all this paperwork. It would sure save America a lot of money.

I also think that the Sportsman of Utah could manage the wildlife a



## Comment Letter 46

## Response Letter 46

whole lot better than the D.W.R. does. Because the Sportmen like to hunt and they don't want to just go around pushing people around until they can't even shoot a jackrabbit without being fined for it. They simply don't care about the game all they care about is the money they get each year. They would rather shoot a deer than try to move it to an area where it wouldn't bother anyone. When they get on private land, that's the reason I don't think they really care about what's game and wildlife.

Now to get back to the real reason I'm writing this letter. I think if the other allotments that are going to be cut are like Burr Point then my vote is for no cut, if anything there could be some increase and some water development would help this to happen.

This is the reason I am concerned, because I don't think the study was made right and with the right people. With some water development Burr Point should have an increase of at least 50%. I protest any cuts on Burr Point of any kind.

Sincerely,  
Ricky Sleave

46.1

There has been, and continues to be, a standing invitation from BLM for permittees to participate in all phases of any rangeland inventory/monitoring program.



Comment Letter 47

Dear Sir,  
 Anthony Utah  
 Dec 17 1982

I have only run Game at Hankamerie for four years. I can tell what the range needs most is water. There's only one stand of the feed ever tushed as the most of the range in Utah. If we could be allowed to make some water. I'm sure the Game would be glad to put a little time in each year. This wouldn't be so much of a project for June July than just buy water only at Street Ranch. With a few good water holes the range would take care of itself. I know it has on it. The one big reason it don't have nearly 7 million Red-bellies

Comment Letter 47

+ 900 Carion prairie dogs. I'm sure there's elk. The no deer range is it. rather even all over it. Wild animals would walk 30 miles to get a drink. I don't see much open range with the million of millions of acres of land that has nothing on it you truly wouldn't think of cutting a range like that when a little <sup>more</sup> from the Game men would fix it up in good shape. I've studied soil all my life & I can tell you the water & Game all around the south part of Utah. I don't need a bunch of deer all the time doing of water & working land away. I'd say mud holes & drinking water that has been a good spring, or having a bunch of clothing seen as far as your age and size & I'm telling Red-bellies & Coyotes ever place you'd look. Like in the 20 I think make a deer hole out of the best range on earth. I'd guess there's about 200 miles, Nevada 2000



Comment Letter 47

② I never knew one is ~~they~~ <sup>they</sup> about those or range. But you notice the cross in road where the feed looks different than what down that mountain feed for fifty years. my dad in 1906 told me the horse never passed there the stings of his saddle in fact he said it looked the same right as it did fifty years ago. The valleys was watered by the pine dogs & that's I probably had a few to many sheep. I don't want any deer. But on a New to school you could count from forty fifty Coyotes each day.

In other days they eat sheep & now they will eat deer because they not range sheep I guess it's the feed game well down to have the sheep & cow man kill them off again if they ever want any deer & elk or chickens. a Coyote eats everything they not want to eat & nothing he should eat. He eats that late when Coyotes for sheep, calves, elk & I guess

Comment Letter 47

You could take all mile on what he eat & you could eat more of it. But he is not eat anything a man would think so I don't see if this is the good or bad that the sheep & deer planted more trees in one year than their ever been planted in 20 years. I was about the state feed game & when they have a few deer eating some ones they they simply kill all of them. I got the ~~book~~ <sup>paper</sup> out all their logs I have they don't care. It's all their deer get killed on highway they never salt them that rather let them lick salt off the road.

you should in 20 years have a out every game left.

It's about the same with the Forest Service & the BLM they always have that of their range with nothing on it. Can't stand the looks of a forest as a rule. Horse mostly eat about the looks of anything. But the poor old cowboy for sheep men



Comment Letter 47

③

If the Coyote enters his sheep he simply hunts  
 him & stay.  
 If the Coon get on the pasture place he fence  
 for them.  
 If the Coon has a 2 other kids ever 3 or  
 4 kids he stays by Range.  
 If the Coon has a 2 other kids ever 3 or  
 4 kids he stays by Range.  
 If one third of his Coon gets in quick  
 and he don't kill the kid.  
 If there is a live deer or Elk on his Range  
 he don't stay there he take for all the  
 Coon to save them. Or any other animal  
 he going to stay for you'll find this out  
 as you get older. a snake snake on a hill side  
 is something of a Jack one on a desert make  
 so still something. But nothing gets as soon  
 as he take for hundred of miles on foot or  
 ride when a Black Backer runs away on  
 one else & never see any thing but 14 men  
 you don't had much of a ride. I don't think  
 that just because our State is the

Comment Letter 47

I protest every cow that is  
 being made on there don't

put that station on earth that we should give  
 it all away. Just because the others station  
 they it's pretty they should always be a  
 Range for a cow horse or any other animal.  
 But we are like in the 2030 when there  
 was enough no good animals to choose from  
 in city the size of Glasgow. The city was  
 a thing in their days. We should be about  
 to save our timber & water & land on any  
 Range or any park.

Wesley Scott

Chas

I will should also be about to make  
 a thing for me & Kinsman there. That  
 Coon. The Range this Range about all the  
 of the year & it's a beautiful Range but  
 it needs water. I don't guess the Buffalo left  
 when they couldn't get a drink. Or make  
 the Coyote run them off.  
 Bye eating their Calves.



## Comment Letter 48

## Response Letter 48

P.O. Box 374  
Monticello UT 84535  
25 February 1983

Don Pendleton, District Manager  
Bureau of Land Management  
P.O. Box 768  
Richfield, UT 84701

Mr. Pendleton:

I am writing to protest the Henry Mountain Grazing EIS. This is a biased document and clearly favors the local stockmen over the interests of true multiple-use land management. There is no alternative that would decrease ADM's to livestock. Wilderness, wildlife, sensitive plants and archaeology receive short shrift.

48.1

As one of the original HiKaNation hikers who crossed southern Utah in the summer of 1980, I found the route over the slopes of Mount Ellen a splendid recreational experience. Our group will be hiking there again this summer, and we look forward to seeing the bison herd again. We do not look forward to sharing campsites and drinking water with the large numbers of cattle in the Henrys, but I realize that ranching is a way of life in the area. I only hope the BLM can resist local greed in the best interest of the range and to preserve wilderness values for the American people as a whole.

*Richard M. Warnick*  
Richard M. Warnick

48.1 Please refer to Oral Testimony Response 14 and Letter Response 30.4.



Comment Letter 49

Comment Letter 49

Feasible with  
2-24-53

Donald L. Pendleton  
District Mgr.  
Richfield District Office  
Bureau of Land Management  
150 East 900 South  
Richfield Utah.

Dear Mr. Pendleton.  
Since I represent Dr. John  
Alexander, a Permittee on Henry  
Mnt. Resource Area, I would like  
to make some comments concerning  
the F.I.S.,

1. I do not feel there are near  
enough trend plots to properly  
evaluate the feed production.  
2. I don't feel enough study has  
been done.

3. I can't agree with B.L.M.  
estimate of 1000 # average wt.  
for cows on winter range.  
I have some records of cows off  
the back fence of Baldy Mt.

49.1

49.2

49.2  
(cont)

These were old fat dry cows  
+ they did not average 1000 #,  
and since at least 50% of the  
Alexander herd is less than 5  
years old I am certain this wt.  
is over guessed.

4. The Bureau estimates 850 # forage  
per head per month.

This is way out of line.  
20 # per day of dry roughage is  
considered an ample ration to maintain  
a cow.

Actually a cow will on the average  
consume about 2% of her live wt  
per day.

I respectfully request you consider  
this facts when making any decision

Sincerely  
William Black  
Feasible with.



- 49.1 Please refer to Oral Testimony Responses 16 and 29 regarding the number of trend study plots; Letter Response 35.3 addresses the adequacy of BLM studies.
- 49.2 Please refer to Letter Response 27.3.

February 24, 1983

Mr. Don Pendleton  
District Manager, BLM  
150 East 900 North  
Richfield, Utah 84701

Dear Mr. Pendleton:

Following are my comments on the Henry Mountain Draft Environmental Analysis Impact Statement.

#### 50.1

Regarding proposed reductions of 44% in active preference on the Trachyte Allotment under your preferred Alternative E, I feel this is unsupported by studies and, therefore, unjustified. As stated in the Henry Mountain DELS (page 80) vegetation data "must be supported by the results of monitoring studies before making forage allocation decisions." The Bureau of Land Management has completed no such studies on the Trachyte Allotment to date. I recommend that a documented 5-year study be made in cooperation with the livestock permittees before any decision is made as to forage allocations. State Sections and private lands should also be considered in calculating grazing use.

#### 50.2

Regarding the proposed establishment of the Little Rockies Allotment for use exclusively by wildlife (Desert Bighorn Sheep, etc.), I feel this is not justified and should not be done without public hearings. I object to having the east one-third of the Trachyte Allotment taken from livestock grazing and made a part of this wildlife reserve.

As a member of the Henry Mountain Resource Area Ranchers Committee I have helped compile a response which covers other concerns of livestockmen using the area. I hope this report will be given utmost consideration by Bureau of Land Management planners.

Sincerely,

*Jack V. King*

Jack V. King  
P.O. Box 1126  
Teasdale, Utah 84773



Response Letter 50

- 50.1 Refer to Oral Testimony Response 59. As long as control can be demonstrated by the permittee, exchange-of-use agreements can be used to allocate forage on State and private lands. However, forage obtained from exchange-of-use agreements is separate from and not part of a permittee's active preference on BLM-administered lands.
- 50.2 Refer to Oral Testimony Response 33 and Letter Response 31.8.

Comment Letter 51

*Bicknell Utah*  
*Feb 23, 1983*

*Mr. Donald L. Pendleton*  
*District Manager*  
*Bureau of Land Management*  
*Richfield, Utah*

*Re: Henry Mountain Draft EIS*

*Dear Mr. Pendleton:*

*As citizens of Wayne County and livestock operators, El and our family, we feel that the County of Wayne has a vital interest in grazing decisions and grazing regulations adopted by your department which directly affect ranches within the area. Wayne County is small in population and is very dependent upon ranching for the livelihood of its residents.*

*We have reviewed with the Henry Mountain Resource Area Ranches Committee recommendations and comments concerning the Henry Mountain Draft EIS. We join in the recommendation made by the Ranchers Association by separate letter.*

51.1

*We recommend an upward adjustment of the permittees' values to reflect the actual grazing use of the permittees. We recommend five additional years of monitoring and study be completed before any action is taken with regard to increasing or decreasing preference AUMs. We believe the study is required to determine if the forage allocation per AUM now proposed is too high and unnecessarily in reduction for cattle on the Henry Mountain winter range. It appears the present proposal may be too high and unnecessarily penalize grazers. Further, we believe adequate band plots should be established and regularly monitored during the proposed five year period to make a more accurate determination of available forage to be included in the allocation formula.*

51.2

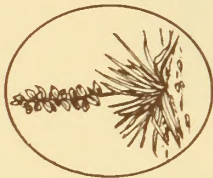
*Sincerely*  
*Mike & Lillian Morrell*



## Response Letter 51

- 51.1 Please refer to Oral Testimony Response 23.
- 51.2 Please refer to Oral Testimony Response 32, Letter Responses 26.1 and 35.3, and also to the Description of Monitoring Program section in Chapter 2 of this Final EIS.

## Comment Letter 52



### Utah Wilderness Association

325 JUDGE BUILDING-SALT LAKE CITY,UTAH 84111-1801/359-1337

February 18, 1983

Don Pendleton  
District Manager  
Richfield District BLM  
Box 768  
Richfield, Utah 84701

Dear Don:

We are commenting on the Henry Mountains Grazing Draft Environmental Impact Statement. We have several concerns, questions and criticisms that need to be addressed in the final EIS.

52.1

We are very disappointed in the array of alternatives. Nearly every grazing EIS in Utah has had the typical Agency Preferred, No-Action, Proposed Action (current situation), Optimize Livestock and Optimize Big game. This "canned" approach is inflexible and cannot be similarly applied to every area in Utah. The BLM could have and should have developed alternatives that fit the ecological and environmental needs and peculiarities of the Henry Mountain Resource Area (HMRA), the local socio-economic needs as well as national concerns that are applicable to the Henrys, Capitol Reef National Park and Glen Canyon National Recreation Area. There are many possible alternatives that could be developed. An example would be an alternative that recognizes the national significance of the HMRA by refusing to develop any new range improvement (aesthetics), reducing livestock grazing and eliminating livestock grazing on allotments with critical wildlife habitat, important primitive recreation values such as sensitive plant species or archaeological sites. Another example of a possible alternative would be one that attempts to improve the local livestock industry by range improvements on allotments whose permittees need them most and/or by transferring permits and giving priority forage to the ranchers who totally depend on livestock ranching for their income. The canned approach taken by the BLM should not be considered sufficient to meet the requirements of NEPA.

52.2

The BLM didn't consider the elimination of livestock grazing as a viable alternative (dEIS page 13). Are there other mandates, contrary to the 1978 C/1Q regulations, that may require analysis of an alternative that eliminates livestock grazing? Why did the BLM consider eliminating bison (alt. D) and eliminating antelope and big horn sheep (alt. B) as viable alternatives, yet eliminating livestock grazing was not a viable alternative?

52.3

The alternatives are disappointing from a multiple-use perspective. The HMRA contains one of the only, if not the only, hunted herd of bison in the U.S. Yet, the Alternative C, the one that optimizes big game, proposes 39,804 ADMs for livestock and only 14,923 ADMs for wildlife (table 1). The BLM admits on



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February 18, 1983  
Page Two

page 119 that, "... big game populations would remain far below their biotic potential under Alternatives A, B, D, and E. Alternative C would not provide sufficient high quality useable forage to enable big game numbers to increase." Tables 4-21 and 4-22 show that even alt. C would improve ranching income over the present situation. Given the above, how can the BIM call alternative C big game optimization? Excepting the current situation (alt. A), every single alternative increases livestock AUMs from past average use. Alternative D decreases wildlife AUMs from past average use. Why is there this disparity between livestock and big game? The BIM notes on page 119:

Overgrazing in highly scenic, visually sensitive areas could adversely affect visual resources on 5 percent of the planning under Alternative A and 47 percent of the planning under Alternative B. Under alternatives C, D, and E, rangeland improvements on 17 allotments could violate VRM management class objectives.

How can the BIM-generated alternatives be considered balanced and viable multiple use choices given the preceding information? There appears to be no real array of alternatives, they are all one-sided and favor livestock interests.

The present condition of the range is of great concern. On page 41 we read that 3 percent is in climax (excellent), 18 percent in late (good), 63 percent in mid (fair) and 16 percent in early (poor). Is this condition good enough to meet the mandates of FLPMA and PRIA with 79 percent of the area below 61 percent of natural potential? The same page also indicates 34 percent of the planning area is barren. Is there any indication some of this 34 percent previously supported vegetation and would, therefore, need to be called zero percent of natural potential and included in the acreage classified in the fourth (early) category of ecological condition?

There are several references in the EIS to over-grazing, both past and present. What concerns ~~us~~ the present state of distribution and/or over-stocking on certain allotments. Page 4 states visually resources would be impacted by over-grazing on 4 and 14 (47% of the IMRA!) allotments in alternatives A and B respectively. Page 5 mentions impairment of wilderness qualities from over-grazing if changes are not made! An area must be seriously over-grazed and over-stocked to impair wilderness characteristics. This is unacceptable. Why has past management allowed this to happen? Why is active preference way over average licensed use and estimates of available forage (EIS, page 17)? Page 107 notes the following five allotments -- Crescent Creek, Nasty Flat, Sandy 1, Sandy 2 and Steele Butte are all over utilized under past average use. The same page notes 16 allotments would be overused under preference!

Given the apparent poor past management by the BIM over much of the IMRA, how can we expect future BIM management to be any better?

Range trend is critical in determining stocking rates. Page 41 of the EIS indicates 32 percent of the key plots are improving, 48 percent are stable and 20 percent are declining. Given the distribution problems that may exist in the IMRA, especially in riparian zones, is the BIM certain these "key" plots are located properly?

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Page Three

52.11  
(cont)

Do these plots accurately reflect actual use throughout the allotments? Changes in grazing systems or allotments will affect utilization on plots. Have there been any of the above changes that could affect the stationary plots since trend studies were initiated? Have other monitoring studies (i.e., yearly random transects) on allotments been conducted as an experimental control to check the accuracy of the plots?

Forage availability cannot be determined by a one time inventory. Carefully selecting trend plots and monitoring studies in conjunction with an overall survey should be used to determine forage availability. Table 2-2 lists a column for available forage to livestock. It is our understanding this was taken from the SUM studies of 1979-80. If this is the case, the forage available column would only be good for that (1979-1980) year. If 1979-1980 was a wet year, the column would not be an accurate average but would be too high.

Comparing present forage production with potential (climax) is how condition is derived. It is important to have comparison areas and relic sites. Are there any such areas in the IMRA? The EIS mentions on page 37 a comparison of current condition with potential. Is there a chart of allotments or range-sites in the EIS that shows this comparison? We could not find the comparison in the EIS.

On page 42 of the EIS there is a discussion on the effectiveness of grazing systems on native desert ranges. Has the BIM conducted any grazing system research in the IMRA? Is there any data available on the effectiveness of continuous season-long grazing, rest rotation, deferred rotation or high intensity/low frequency (Savory system) that would apply to the IMRA?

Desert rangelands frequently suffer from livestock distribution problems that leave some areas seriously overgrazed while other areas receive little or no use. Water is a major limiting factor in proper distribution. What percent of the IMRA is little used or ungrazed because of distribution problems? Riparian areas are particularly susceptible to damage from poor distribution, even when salt and water is available nearby (Bryant, 1982). It appears even the best efforts to achieve distribution may not be effective in eliminating damage to riparian areas. Recent research has shown cattle tend to go to the same areas year after year, especially riparian zones, even with the traditional range improvements that are supposed to aid distribution. This brings us to the question of suitability. If proper distribution is difficult or impossible to achieve, shouldn't the guidelines for suitability be changed to reflect this fact? It may well be that areas now classed as suitable or potentially suitable should in fact be classed as non-suitable. In order to protect riparian zones or other sensitive areas, the methods for determining suitability should be flexible and subject to change. This type of flexibility would be more responsive to the needs and the health of the land. Instead of forcing livestock nearly everywhere, the proper approach in portions of the IMRA may be to reduce stocking rates by only considering the AUMs on the utilized portion of the allotment.

52.12

52.13

52.14

52.15

52.16



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Page Four

52.17

The EIS notes the climatic conditions in the IMRA favor the evolution of restricted and rare plants. Table 3-2 lists the sensitive, threatened and endangered plants likely to occur in the resource area; however, the table, as the EIS admits, does not reflect an area wide on-the-ground survey and is probably incomplete. How can Standard Measure No. 5 (page 27) apply to plants that are unknown? Standard Measure No. 5 leaves the door open to problems without knowing where sensitive species are located. How can this be considered adequate protection? Isn't an on-the-ground survey necessary to insure protection for sensitive or rare species?

Wildlife seems to be treated as a second class resource in the EIS. As we have previously noted in our comment, even the best wildlife alternative will not meet UDMR's long term management goals, and the BLM preferred alternative reduces forage allocation for bison. What impacts from increased domestic sheep numbers, if they do in fact increase, increased cattle numbers or changes in livestock use patterns would occur to wildlife? Research has shown that wildlife may not utilize a range because of the proximity of domestic stock even when there is sufficient forage. This is especially true of bighorn sheep, who are also harmed by diseases from domestic sheep. Are other wildlife species in the IMRA similarly impacted by domestic stock?

52.18

52.19

Are there any sensitive fish species known to inhabit the streams in the IMRA? Since these streams drain into the Colorado River (now Lake Powell), is it possible any of the threatened or endangered Colorado River fish (Humpback Chub etc.) inhabit these streams and rivers?

The IMRA contains several wilderness study areas (WSAs) and appealed units. These roadless areas are of national concern and significance. We have several concerns dealing with these areas and how the EIS relates to them.

52.20

Why was the Muddy Creek WSA (060-007) excluded from the map on page 65? The area covered by the map does include the southern portion of this WSA, although its boundaries are not delineated.

52.21

A major issue is the possibility of impairing range improvement projects being proposed for the WSAs and appealed units. The impacts to the wilderness resource should be analyzed, even if the projects won't occur until Congress decides on the wilderness issue. A question closely related is how will this EIS determine the eventual BLM suitability decision on the WSA? It is possible a perceived prior commitment, an impairing range improvement, could guide the suitability decision by the BLM on a given WSA even if the wilderness values outweigh the forage values gained from the range improvement. Isn't the BLM prematurely and improperly deciding the fate of WSAs by contemplating impairing projects inside certain WSAs? How will the grazing EIS and the forthcoming wilderness EIS be reconciled and coordinated?

52.22

The EIS states on page 4, "...construction of rangeland improvements could violate the BLM Interim Management Policy (IMP) non-impairment criteria. This brings yet another question. Where will these improvements be located? There is no map in this EIS, as there have been in past grazing statements, locating the proposed range improvements. The entire issue of wilderness and its

Don Pendleton  
February 18, 1983  
Page Five

52.22  
(cont)

interplay with this grazing EIS has been inadequately considered.

52.23

Visual resources and recreation, as the EIS notes on page 66, are of national significance. Why then, has the BLM proposed significant land treatments in the areas of highest scenic quality and not, to as great extent, in other areas (EIS, page 4)?

52.24

The riparian zones in the IMRA are not in very good condition. About 50 percent of the riparian acreage is in poor condition (EIS, page 37). On all alternatives except C, the condition would remain the same. How can the BLM meet Executive Order 11990, when they plan no fencing or other measures to protect riparian vegetation in the preferred alternative?

52.25

We have some site specific concerns about allotments. The Waterpocket allotment is a good example of the problem with the proposals and conclusions the BLM has made from the data. In appendix 2, the trend plots show a downward longterm estimate in range trend for the allotment. The Index column (indicator species) is down on all four plots as is the photo trend. Other columns in the appendix also show a downward trend. The Waterpocket allotment is in the custodial management category (no improvement). Every single alternative, except A (current situation) increases the ADMs allocated to livestock by at least 100 percent! How can the BLM justify doubling the ADMs in this allotment with no improvements proposed and a declining range trend? This is absolutely beyond any sort of rational land management! The Waterpocket allotment is also of great concern because it is partially within Capitol Reef National Park.

52.26

The EIS leaves several unanswered questions concerning Capitol Reef National Park. How will the grazing proposals in this EIS fit in with the recently passed grazing legislation pertaining to the park? How has the recently completed Capitol Reef Management Plan been incorporated in this EIS so there is no conflict between plans, as is claimed on page 5 of the EIS? Why are the 4 Capitol Reef allotments classified under custodial management? How will increases in livestock numbers in allotments that also go into the park be managed to keep livestock levels at the existing use in the park? An increase in ADMs in a border allotment could bring more livestock, and probably will bring more livestock, into the park. Would this violate the law? What future level of use will be allowed in the park-- past average use or preference?

52.27

52.28

Local socio-economic concerns v. broader concerns may not be as much in conflict as would be supposed. Page 72 of the EIS notes that 27 of the 52 cattle permits only have from 1-100 cows. This is a small operation and could not be considered large enough to make a living without a substantial source of outside income. Are most of the permittees ranchers without outside income or are they part-time "hobby" ranchers with other income sources to provide them with their needed money supply?

52.29

The present sheep use is only 301 ADMs yet the BLM preferred alternative proposes adding 8,180 ADMs for sheep. Is this huge increase needed or justified?



Don Pendleton  
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Page Six

It is possible the perceived conflicts could be resolved by looking deeper into the economics of ranching in the region and further researching the income sources for the counties in and around the IPRA. There may be no real need or demand to increase livestock AUMs. There may be no economic justification to do so.

In summary, we feel the alternatives presented are extremely biased and do not, in any way, represent multiple use management. Many conclusions and proposals in the EIS cannot be justified from the data. Adequate protection is not given to riparian zones, sensitive plant species, wildlife, primitive recreational values or visual resources. These valuable resources are of great concern, both locally and nationally. We feel these concerns far outweigh any marginal benefits gained from massive range improvement projects for livestock, especially in light of the fact most range improvements are a subsidy from the taxpayers of the U.S. Several unanswered questions remain about the WSAs and appealed units and how their studies will be coordinated with this EIS. Several concerns and questions exist in regard to Capitol Reef National Park. The Park Service, if they weren't, should have been intimately involved in the preparation and writing of this EIS.

We hope these comments are of use to you. We expect a much improved and reworked final EIS. Please send us any decisions and/or documents relating to this EIS or the implementation of any portion of the EIS.

Cordially,

*Gary MacFarlane*  
Gary MacFarlane  
Staff Member

52.1

BLM considered all public concerns, issues, and proposals for additional alternatives during the scoping process and again during public review of the Draft EIS. However, any alternative proposed must meet the test of "reasonableness" as defined by NEPA. For a further discussion of alternative development, please refer to Oral Testimony Response 6.

BLM is mandated by policy and the NEPA process to analyze the "No Change" (existing situation) Alternative, the Agency-Preferred Alternative, and the No Action Alternative (please refer to Letter Response 8.1). Alternative E, the preferred alternative, considered all resource values (i.e., livestock, animal life, recreation, archaeology, socioeconomics, etc.): this alternative was developed using a multiple-use approach to determine the best possible use for all resources.

No rangeland improvements are proposed under Alternatives A and B. Elimination of livestock grazing from critical big game habitat is proposed under Alternative C. The standard measures listed in the Standard Design, Construction, and Operation Features section in Chapter 2 would provide protection for primitive recreation, cultural, threatened and endangered species, etc. Your suggestion to improve the local livestock industry by rangeland improvements is proposed under Alternatives C, D, and E in this Final EIS.

See Letter Responses 8.1, 8.2, and 8.3.

52.2

Alternative B requires that grazing be analyzed at active preference levels for livestock and existing big game reservations. Because there are no existing forage reservations for antelope or bighorn sheep, for analytical purposes only, no forage could be allocated to these species under this alternative.

Bison were removed from Alternative D because of their direct competition for forage with cattle. For analytical purposes, removing bison forage requirements provided a better indication of the optimum livestock grazing level under this alternative.

See Letter Responses 8.1, 8.2, and 8.3 for an explanation of why the elimination of livestock grazing was not considered as an alternative.

52.3

52.4

There is an error in the Animal Life section on Page 119 of the Draft EIS. This Final EIS has been corrected to read: "Only Alternative C would provide sufficient high quality useable forage to enable big game numbers to increase."

Also, see Letter Responses 30.2 and 30.4.

52.5

Please refer to Letter Response 52.1.

52.6

The determination of the present rangeland condition is based on 10-12 years of monitoring and trend studies, supported by a recent soil-vegetation inventory. Present ecological condition is better than it has been in past years.

BLM is not aware of a rangeland condition standard required to meet mandates of FLPMA or the Public Rangelands Improvement Act. It is BLM's mission, however, to improve rangelands in fair condition or maintain rangelands in good condition; this EIS presents three alternatives designed to improve rangeland condition.



## Response Letter 52

52.7

The 34 percent of rangelands which was rated as barren did not previously support a significant amount of vegetation: these are slickrock and blue-clay areas.

52.8.

Ten to 12 years of monitoring and trend studies, supported by a recent soil-vegetation inventory, indicate that livestock and big game grazing use presently exceeds forage production (grazing capacity) by a significant margin on six allotments and one unallotted area (approximately 14 percent of the planning area), as reflected in Table 4-1.

In accordance with BLM policy, where monitoring studies indicate there is vegetation overutilization by livestock and adverse rangeland effects, management will make adjustments in permitted use.

The analysis presented in the EIS assumed the worst-case situation (continuous grazing at the level stated in the alternative with no monitoring-study-based adjustments). After several years of significant overutilization, impacts (i.e., cattle trails, erosion, loss of vegetation cover, etc.) on visual and wilderness values would probably occur. However, as indicated above, this could not legally occur because legislative mandates and BLM policy require stocking adjustments be made before rangeland resources (including visual and wilderness values) are significantly affected.

52.9

Livestock active preference was adjudicated between 1964-1967. Forage adjudication was based on a range survey conducted in 1962-63. However, livestock use at the levels set during adjudication resulted in overgrazing on some allotments. To correct this problem, three reductions in active preference were planned to occur over a period of several years. Because of rangeland improvements, economics, kinds of livestock, and improved management practices, only two of the reductions were necessary. Based on current data and rangeland potential, it is obvious that the 1964-67 adjudication overallocated forage on some allotments.

BLM believes that the current soil-vegetation inventory and trend and utilization data are more reflective of the rangeland's grazing capacity and has proposed to adjust active livestock preference accordingly.

52.10

Admittedly, BLM has made some management mistakes in the past; however, BLM is continually trying to improve and update its management capabilities in a manner compatible with sound multiple-use concepts. Also, please refer to Letter Response 52.9.

52.11

Please refer to Oral Testimony Responses 16 and 49.

52.12

BLM has no intention of allocating forage based on a one-time inventory. However, where 10-12 years of monitoring and trend studies are available and the soil-vegetation inventory supports that data, a determination of forage availability will be made. See Appendix 3, Figure 1, for information on soil-vegetation inventory and Table 3-3 for information regarding study data.

## Response Letter 52

52.13

During the soil-vegetation inventory process, relic sites were identified throughout the Henry Mountain Planning Area. The inventory team attempted to find relic sites representative of each vegetation type sampled. Descriptions and locations of the relic sites used are available at the Richfield District BLM Office. For an assessment of current ecological condition and a comparison of current forage production with potential production by allotment, see Table 3-3 of this Final EIS.

52.14

There has been no research of grazing systems in the Henry Mountain Planning Area. BLM has no research departments such as the Forest Service (i.e., the Desert Range Experiment Station). Grazing systems have been implemented and additional systems are being considered (see Rangeland Improvements section, Chapter 4 in this Final EIS). The specific parameters of each grazing system will be worked out on-the-ground between the permittee and the Henry Mountain Resource Area staff.

52.15

At this time, distribution problems occur in portions of most of the Henry Mountain allotments. BLM is working to correct these problems in two ways: (1) encouraging permittees to use salting and herding practices; and (2) working jointly with permittees to construct watering facilities in lightly used areas to increase the areas accessible to livestock and achieve proper utilization of the entire grazing area.

52.16

Note that the susceptibility of riparian areas to overutilization by cattle has been analyzed in the Vegetation section of Chapter 4 of this Final EIS.

During the soil-vegetation inventory allocation process, suitability criteria were applied. The criteria used were distance from water, slope, and forage production. Suitability criteria are used to prevent overutilization on preferred livestock use areas and result in stocking at levels that do not exceed grazing capacity on these areas.

The methods for determining suitability are flexible and subject to change. If monitoring shows that overutilization is occurring due to misapplication of suitability criteria, grazing use will be adjusted. Also, if it can be demonstrated that a change in management alters the application of suitability criteria, grazing use will be adjusted.

52.17

Please refer to Letter Response 12.13.

52.18

Mule deer would not be able to reach UDW's long-term management goals under any alternative because of poor quality crucial summer range condition. The Animal Life section, Chapter 3 in this Final EIS, discusses this subject in detail. Alternative E, the preferred alternative, would reduce forage allocations for bison below current use levels because UDW and BLM have mutually agreed to maintain a post-hunt herd size of 200 yearling and adult animals. The current population for bison is estimated at approximately 260 yearling and adult animals.



52.18  
(cont)

There are no data to indicate that diseases associated with domestic livestock are impacting big game populations on the Henry Mountains. Admittedly, domestic sheep diseases are harmful to desert bighorn sheep. Because of this, no domestic sheep grazing would be allowed in areas planned for desert bighorn sheep reintroductions.

Under Alternative E, cattle grazing in the Flint Trail allotment area would be allowed only on an emergency basis and then only in coordination with UDW and Glen Canyon NRA.

52.19

Please see the Endangered Fish Species section in Chapter 3 and the Threatened, Endangered, and Sensitive Species section in Chapter 4 of the Final EIS.

52.20

The Muddy Creek WSA was excluded because it is not part of the affected environment for the Henry Mountain Grazing EIS.

52.21

Actions that would impair wilderness values could not be taken unless there were "grandfathered" rights involved. Site-specific environmental assessments would be prepared prior to construction of rangeland improvements. This would ensure protection (non-impairment) of wilderness values and thus, "the fate of WSAs" would not be affected by rangeland improvements. If proposed improvements did not meet IMP guidelines, construction would be foregone or delayed until Congress made its designation decision.

Planned rangeland improvements and their potential effects on wilderness values will be discussed in the Utah Statewide Wilderness EIS.

52.22

See Letter Response 52.21. Figure 4-1 in this Final EIS gives approximate locations of potential rangeland improvements.

52.23

As indicated in the discussion of rangeland improvements in Chapter 4, suitability criteria are utilized to select areas for land treatments. These criteria indicate that the potential success of treatments is highest in piñon-juniper areas at higher elevations where there are favorable soils and sufficient precipitation. Thus, these areas were proposed which, coincidentally, are mostly inside WSAs.

52.24

Please see Letter Response 17.20.

52.25

Please refer to Letter Response 37.7.

52.26

Public Law 97-341, 96 Stat 1639 (Appendix 1) provides for alternatives and impact analysis for future grazing within Capitol Reef National Park. These studies will go beyond the scope of this EIS and will be conducted by the National Academy of Sciences. (See Letter Response 12.1 and the Unresolved Issues section in the Summary of this Final EIS.)

The Capitol Reef National Park General Management Plan is acknowledged in the Land Use Plans and Controls section in Chapter 3 in this Final EIS. The impact analysis on the Land Use Plans and Controls section in Chapter 4 of this Final EIS concludes that the actions specified in this EIS are in compliance with the General

(cont)

52.27

There are five allotments which straddle Capitol Reef-BLM boundaries, four of which (Cathedral, Hartnet, Sandy 3, and Waterpocket) are classified under custodial management. The other allotment (Sandy 1) is classified for improvement. Four allotments are placed in the custodial category because little can be accomplished from changing current management actions or by implementing additional rangeland improvements. Of the five allotments, only the Waterpocket Allotment is scheduled for an increase above active preference.

According to existing legislation (see Appendix 1) BLM has no administrative authority to adjust active preference on NPS lands. Therefore, should permittees with grazing privileges on BLM lands desire to increase their use to active preference, then use will undoubtedly increase on NPS-administered lands. The effects from this level of grazing on NPS lands can only be determined by additional studies, including monitoring. Also, please refer to Letter Response 12.1.

52.28

The Socioeconomics section in Chapter 4 states: "The people of Wayne and Garfield Counties are economically dependent upon having access to and using the natural resources.... Many livestock permittees work at other jobs, however, and livestock operations are not always their primary source of income." This does not necessarily mean that these permittees are hobby ranchers; in some cases, when considered separately, neither the outside work nor the ranch operation could support a family. However, when these two incomes are considered together, they would provide adequate income. Also, determination of the economic validity of individual ranching operations is beyond the scope of this EIS.

52.29

The sheep use proposed under Alternative E, the preferred alternative, is 2,874 AUMs above active preference. However, sheep use on the planning area is presently lower than active preference.

The Vegetation section in Chapter 4 of this Final EIS also indicates that the planning area is best suited for sheep grazing on some allotments. However, because of present economic conditions for the sheep industry, it is unlikely that sheep permittees would use the increase available. These data are presented in this Final EIS to indicate that the rangeland could be better utilized if sheep grazing increased.



Orlo & Allen Dufey  
Bicknell, Utah 84715  
December 10, 1982

Don Pendleton  
BLM Office  
Richfield, Utah 84701

Dear Mr. Pendleton,

With all respect to the EIS study that we received we must protest the findings of your people regarding our permits.

To begin with, our Sandy 1 range is on an upward trend of approximately 95%. With this kind of return of feed we cannot see how a reduction of 23% can be justified.

Steele Butte allotment has an upward trend of 93% with less than half of this being used. We recently bought 2400 AUMs on this allotment which was not being utilized during the time of the EIS study. There is a lot of area that can be used which hasn't been used. Because of the amount of cattle being run on this allotment we have filled our permit this year, and now we will use most of this area.

Nasty Flat has an upward trend of 93% also and you are asking for a 16% reduction. That upward trend is very good, especially when we never put a cow north of Dugout. We have left that area for the buffalo so they don't mix with our cattle any more than they do.

We would be glad to work with you to see how we can help the range. We have had several appointments with the range specialist last summer to see about putting water out on Steven's Mesa, but he never kept an appointment with us. If there were more water holes the cattle wouldn't be so concentrated in one area of the allotment. There's lots of area in these allotments which are never used simply because the water is too far away. Naturally the area around the water holes is more heavily grazed and in poor shape, but the whole allotment shouldn't be managed on just the few miles surrounding these water holes. The whole allotment must be considered.

We have been promised a water line running from McMillan Springs about one mile out on the rangeland. This would help with the cattle problem in the camp grounds at McMillan Springs. We would be as happy as you are with this improvement.

ment. We have had someone shoot a cow and calf in that area and would prefer our livestock away from the tourists.

As for a financial loss this would be very extensive to us economically. Our loss in permits would be worth \$67,100.00. That is an immediate loss. It would also cost us 210 head of cattle, which will cost us over \$50,000.00 each year in cash loss. Therefore, the first year this would cost us \$117,100.00 and \$50,000.00 each year thereafter out of our family income. This kind of a loss will put us out of business in a short time. The smaller operations will be out of business the very first year. Why is it necessary to put people that are willing and able to work out of business and out on the job market where there aren't enough jobs now for the unemployed?

We as stockmen in the area are interested in the beauty of the range, the wildlife there, and the future of our families. We love this area and wouldn't want to see it turned permanently in any way. We resent the fact that the EIS indicated that we are not able to tell when our cattle are out of feed and need to change areas with them to keep them alive and to save the range. We aren't abusing the range, we know we have to take care of it, we are very dependent on it and need it in the best of conditions to feed us in business. We know we can't overuse it and expect it to be there for us always. We have been in the business many years and know about it.

We would be very happy to go over any of these ranges with you at your convenience to see where there are ranges in trouble. And in such cases keep our livestock off them until they improve. With some help from you we could develop some water holes and open up a lot of range that isn't being used. As we mentioned before this would take a lot of money off the more heavily grazed areas. Reseeding along Dugout and Cedar Creek ridges will help us very much. The trees are so thick that it has killed out most of our winter feed. With the money we pay for our permits there should be ample funds for such improvements.

Because of the great loss to us that the proposed cuts would enact we feel we should be entitled to more time to prove our side of this disagreement in managing this range. There are many older permittees in this area that can testify to the fact there use to be hundreds more sheep and cattle on these ranges, and it supported them without any trouble. We hope that we will be able to work with you and help the range and us at the same time.

We feel that our interests are the same as yours but if you go through with the preferred alternative you and the wildlife will be the only ones left to run on the range. We know it sounds good to increase the wildlife in these areas, but is it necessary to ruin the lives of many people to do it.



53.1

The long-term estimates of trend for these allotments (taken from Appendix 3, Table 1 of this Final EIS) do not agree with the data you present. A summary of trend on these allotments, based on more than 10 years of study, is given in the Trend in Range Condition columns of Table 3-3.

It appears that you added the Current Ecological Successional Stage of Rangeland Percent columns in your analysis.

Bicknell, Utah  
Feb. 28, 1983

Donald L. Fendleton, Dist. Manager  
B.L.M.  
Richfield, Utah 84701

Dear Mr. Fendleton,

I would like to comment on the EIS on the Henry Mountain.

As a permittee of 2 allotments in the Area, Sandy #1 and the Rockies allotment, we had to take a 75% cut in Sandy #1 and 48% reduction in the Rockies in the publication with the promise of water improvement, and vegetation improvements which has not been done.

The EIS has a reduction in both allotments in their study. There seems to be a difference in the weight of livestock and ~~and~~ wild life and the amount I feel it takes to maintain body life of animals that are on the ranges. As compared to other agencies this should be studied further with adjustments accordingly.

54.1

54.2



Comment Letter 54

Response Letter 54

The EIS favors the Wildlife and Cuts the cattle and sheep that should be allowed on the range. I think the stockmen should have an increase in FUM's as promised by the BLM, also there should be more study plots, so they can monitor the ranges and give us more water development.

Sincerely,

Edward Morrell  
Box 2.  
Bicknell, Utah 84715

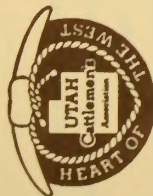
54.1

Please refer to Table 2-4 for potential rangeland improvements under Alternatives C, D, and E and Figure 4-1 for approximate locations of improvements.

54.2

Please refer to Letter Response 27.3.





**Utah Cattlemen's Association**  
Publishers of *The Utah Cattleman*

One-fifty South Sixth East • Salt Lake City, Utah 84102 • 355-5748  
Suite 108

February 28, 1983

Mr. Donald L. Pendleton  
District Manager  
Bureau of Land Management  
150 East 900 North  
Richfield, UT 84701

Dear Mr. Pendleton:

I have reviewed the Henry Mountain Draft Environmental Impact Statement and have the following concerns and statements to make:

55.1

1. I have serious questions concerning the AUM's and animal size which in the report you are currently using a thousand pounds for cattle and only ninety pounds for deer. It is our belief that these are extreme. Your range cow with calf should not include more than 780 pounds maximum, and on the winter ranges should not exceed 650 pounds which seems to us as an average. You have to consider that these are desert livestock and are not the large-framed animals that you will find in other study areas. Where was your justification and information base for using a thousand pounds for cattle?

55.2

2. I noted that you only used one year in analyzing the terrain and weather, and that year was a very dry year. It seems to me that more than one year should be used in giving a typicalistic appraisal of an area and can find no sentence in your EIS which explains the use of using this dry year. I would recommend a minimum of five years review which seems to me is used in most reporting processes.

55.3

3. It seems that your comments concerning wildlife and livestock are not evenly balanced, with a reference stating, "to meet UDW's prior stable numbers on deer and long-term management goals for bison, antelope and bighorn sheep", I find no similar statement for livestock. Is this putting the livestock and the wildlife at a very competitive position, suggesting a reduction of livestock to meet the desired UDW.

Page 2  
Donald Pendleton  
February 28, 1983

4. I would strongly recommend a review of a stewardship management approach over any of the recommendations that were made in your EIS, especially utilizing the maximum sustained yield principal of management.

55.4

5. With the current economical conditions and market prices for livestock, I cannot understand some of the figures used in analyzing the cost and income structure put together for small, medium and large sized cattle operations. Using the Utah Agricultural Statistics 1982 book, a three year average using '79 through '81, is 75.83 per hundred weight on calves. Using a five year average, '77 through '81, the calf average is 64.79. Analyzing 1981 as a single year, the average calf was 63.30. Using these calculations, it does not seem that the full economical impact is addressed in your current EIS. Would these price differences make a major social-economical impact more critical than what your environmental consequences have estimated, especially on these rural counties?

55.5

6. I sincerely hope that the lives of ranchers and livestock will not be put in jeopardy because of hand-selected information such as one year of research to reduce livestock AUM's.

Thank you for allowing us to comment on this Environmental Impact Statement, and I stand ready to testify or answer any questions concerning my comments.

Sincerely,  
UTAH CATTLEMEN'S ASSOCIATION

*Mike R. Sibbett*  
Michael R. Sibbett  
Executive Vice President

MPS:fca



## Response Letter 55

## Comment Letter 56

- 55.1 Please refer to Letter Response 27.3.
- 55.2 To estimate grazing capacity, 16 years of precipitation records were considered, along with rangeland condition and trend studies (see Appendix 3, Figure 2 in this Final EIS). Trend study plots located in 127 key range use areas were read and photographed during that period. As a further basis for estimating grazing capacity, a soil-vegetation inventory of the area was completed in 1978-1980. Please refer to Oral Testimony Response 23 for a discussion of the new average licensed use levels.
- 55.3 Please refer to Letter Response 27.1.
- 55.4 The references to the Utah Crop and Livestock Reporting Service in Appendix 3 (Appendix 4 in this Final EIS) were in error and have been corrected in this Final EIS. These budgets were taken from Jacobson (1981). This study provided the basis for the ranch budget analysis in the EIS. (Also, see Oral Testimony Response 32.) The lower figures you cited would, of course, affect the budgets because they would result in lower ranch income. It should be noted that the budgets used in this EIS are based on averages and, therefore, represent only general, relative estimates of what individual permittees would experience.
- 55.5 Please refer to Letter Response 35.3.

- As I have reviewed all the material I could find regarding the condition of Nasty Flat, Sandy #1, and Steele Butte allotments, collaborated with my knowledge of these allotments, I can not find a need for a reduction from preference.
- I believe there are management tools that can improve site-specific impacts and would like to implement these.
- More or better monitoring should be done to determine if the management techniques are working and if the stocking rates should be increased above preference or reduced.
- There should be some range improvements made to improve distribution (water development), and forage production (rehabilitation), possibly deferred grazing, fencing, etc.
- I have looked at the SWA's or Utah 2's furnished me and by changing the suitability standards set by the B.L.M., for example: 35 AU/acre versus 32 or 60 versus 32. The AUM available for cattle changes considerably. The same is true if slope suitability standard is increased. Since the statistical chance for error with SVM is quite possible and may be fairly substantial, a much larger amount of feed may be available for cattle within the suitability standards than was tabulated to be in the draft EIS.
- With this in mind, it becomes critically important to monitor and to determine what influences are affecting the results of the monitoring. Is weather the main influence on the test plots? Are the plots representative of what is in fact happening out there on the range, or are they placed wrong or influenced by outside factors, not grazing? Are the proper key species being used?
- The actual use figures that have been collected in the past are not even close, on these three allotments.
- To set a stocking rate on the basis of the information now available would be unwise as the information is not reliable.
- My suggestion is to leave preference as is and continue to monitor with current plots plus some additional monitoring. Involve us, the permittees, in the
- 56.1
- 56.2
- 56.3



## Comment Letter 56

## Response Letter 56

monitoring process, then after 5 years of monitoring, implement changes up or down indicated and continue to monitor.

Bear in mind that just a few years ago, Steele Butte allotment received a ten per cent increase. If the criteria that went into issuing that increase was no more reliable than that which is now available, maybe the increase was not warranted.

Sincerely,  
Keith A. Dunphy

56.1

During the planning and EIS process, rangeland improvement needs were identified for each allotment to increase forage production and/or improve livestock distribution. See Table 2-4 in this Final EIS for a summary of rangeland improvements for each allotment. Figure 4-1 shows proposed locations of potential rangeland improvements.

56.2

Please refer to Letter Responses 35.3 and 40.12.

56.3

Vegetation, whether located on a trend study plot or elsewhere on an allotment, is strongly influenced by weather. Plant species adapted to any site are an expression of climate since species must adjust to the fluctuations in climate on that site. However, weather is only one of many factors influencing condition on trend study plots and allotments. Other major factors include grazing use by livestock and big game, fire, insects, etc.

BLM identified key species as those species making up a large portion of the desirable forage plants on a range. Please see the definition of key species in the Glossary of this Final EIS for a more detailed description. Also, see Appendix 3, Table 1 for identification of key species by trend study plots.

Oral Testimony Responses 16 and 49 discuss the number and placement of trend plots.



# CROSS S CATTLE CO. + S

February 28, 1983

Donald L. Pendleton, District Manager  
Richfield District Office  
Bureau of Land Management  
150 East 900 South  
Richfield, Utah 84701

Dear Mr. Pendleton:

I am writing to comment on the draft Henry Mountain Grazing Environmental Impact Statement. The Ranchers' Committee has filed with your office collective comments of many of the ranchers concerned with the EIS. I am in support of all their comments, and want to register my support for the points that they made regarding the EIS. In addition to those comments, I would like to make the following points:

- 57.1 1.. The EIS overlooked the fact that mature cows marketed from our allotment averaged over the last three years 768 pounds, and the BLM used an average 1,000 pound cow. Further, the BLM used an average consumption of 800 pounds of air dry matter per cow per month, which is grossly over estimated, both because of the average weight of the cow and because of the documented research contained in the Ranchers' Committee comments.
- 57.2 2. In 1977, we reduced our cattle numbers by over fifty percent and therefore our actual use as determined by the number of AUM's we paid for reflects a very drouthy condition that we compensated for and now our actual use figures are reduced simply because we were protecting our own range. A more realistic approach would be to use the last five years as an average, inasmuch as they would more closely resemble weather patterns that would be expected over the long term.
- 57.3 3. It seems unrealistic to me for the BLM to use the SVIM method of establishing carrying capacity within the allotments when that is no longer an accepted method of doing so, and so states in the EIS.
4. As listed in the EIS there are five allotments that are currently unallotted and therefore the forage is going to waste in those allotments. I have made application for a limited amount of temporary use in the Flint trail allotment since 1980, and my applications have been

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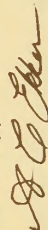
continually denied. The approach by the Bureau to allow use only as needed in case of drouth in these unallotted allotments is totally unrealistic for two reasons:

1. Generally, if we have a drouth in the area, it is area wide and therefore there would not be any additional forage in these allotments; and
2. Expense for ranchers in moving to an area where the cows do not know the water holes and the trails and so on, would grossly exceed the benefit achieved. It is obvious that if these allotments were allowed to be used on a continuous use basis, a benefit to the ranchers and to the BLM would be forthcoming.

Because of the limited number of Trend Plots now being used by the BLM to establish a statistically relevance trend in most allotments is not possible. I would like to suggest that the BLM establish the Species Frequency method of monitoring trends, and thereby give us realistic figures in which to establish trends for forage allocation.

Thank you very much for the chance to comment on this EIS. Please pay careful attention to the amount of effort that went in to preparing the Ranchers' Committee comment papers, and allow them the weight that they deserve in arriving at a final decision.

Sincerely,



A. C. Ekker, President



## Response Letter 57

- 57.1 Please refer to Letter Response 27.3.  
 57.2 Please refer to Letter Response 40.1.  
 57.3 Please refer to Letter Responses 35.3 and 42.5.

## Comment Letter 58

PAGE 1 OF 2 PAGES

Bureau of Land Management  
 Richfield District  
 Box 768,  
 Richfield, Utah 84701

COMMENTARY AND RESPONSE TO DEER HENRY MTR. ENVIRONMENTAL IMPACT  
 STATEMENT DATED OCTOBER 1982-----

Chapter 1, page 7 of the DEJS defines the purpose and objective of the prepared statement as well as the need for action. In attempting to correlate the criteria within the DEJS, I am led to conclude that the "purpose and intent" of the DEJS is geared to only ONE OBJECTIVE: "The reduction of livestock on the involved public ranges."

In general the DEJS indicates improving grazing and forage conditions under present and recent past usage, yet an almost blanket reduction in livestock numbers is recommended.

For the past 50 years livestock numbers have continually been on the decline, from my point of view, the more realistic OBJECTIVE would be to stabilize the number of domestic livestock now permitted, and increasing the total aum's available through range improvement and management planning. Cattle and sheep have been grazing the Henry Mtns for over 100 years, and should be able to continue for the next 100 years with great benefits to the local economies and to this great nation as a whole. There must be another alternative from those you have listed that would be accented to the preservation of the livestock operations grazing on public lands;

Hopefully, my comments will be of a constructive nature, reflecting my own feelings, desires and experience while using the public lands for grazing purposes over the past 40 years.

58.2

Establish an advisory council for the Henry Mountains To deal with differences and problems with the BLM.  
 The council could also deal directly with DNR to work out problems that may arise, particularly where forage management is concerned.

Work out an incentive program with the permittees to obtain better distribution and utilization of available forage through range improvement and water development.

Allow for the transfer of livestock from an allotment of heavy usage to one of under-usage.

58.3

Re-evaluate the usage of the lands withdrawn for Parks, to determine if that usage really justifies the elimination of grazing;

58.4

Where directed under threat of our grazing privileges to fill out "Actual Use" forms, if these forms are as vital to the BLM, then the permittees should be billed and pay for the actual usage rather than a preferred usage.

58.5

Inaugurate a genuine predator control program; The DNR and permittees need to recognize that game animals (deer) cattle and sheep cannot survive without unified control of the lions and coyotes.

Trespass procedures can be very unjust as they are presently administered; If a cow wanders over a broken fence, an allotment boundary, or through an open gate, I feel that it would be more appropriate for the trespassing agent to allow the alleged owner to identify and substantiate the ownership of trespassing animals. If animals are found to be



## Comment Letter 58

Page 2

*in the pass that are permitted or licensed, and the pass is not intentional on the part of the owner, then the pass charges should reflect only the range damage and additional expenses of the action. Many the pass actions are concluded by energetic range management people for the sole purpose of exercising and demonstrating authority rather than maintaining and improving range management.*

*Just to a program to monitor the effect of rodents over long periods of time on the range. I have seen devastating results on isolated areas as a result of rodent activity, although I believe some of the associated activity of rodents is beneficial because of the stirring of the soil, also on over-population can deplete beneficial plant life to where several years may be required for reasonable recovery. (Note) Generally observed on good years, of vigorous plant growth.*

*Ranching and livestock grazing on public lands in this area are very closely related and inter-dependent, they support each other, there just isn't enough privately owned grazing ground to take care of the farming ground. Any reduction in grazing privileges may be the crowning influence that causes a sound ranching operation to fold.*

*who produces the food when all the people are employed by the governing agency? What kind of social system would we have? As I see it, we had better try real hard to keep as many ranchers as possible self-employed to help pay taxes and support the rest of our system; look for positive ways to keep the remaining ranching operations alive.*

Submitted by

Leo D. Jackson

Box 120

Torrrey, Utah 84775

## Response Letter 58

**58.1** Note that, to reach the estimated grazing capacity as analyzed in this Final EIS, reductions in the actual number of livestock would take place on six of the 22 grazing allotments. Any reductions on the remaining 16 allotments would affect only active preference levels. Please refer to Letter Response 35.3.

**58.2** BLM Richfield District and Henry Mountain Resource Area personnel welcome coordination with the permittees to resolve differences and discuss suggestions for development and implementation of the grazing management program for the Henry Mountain Planning Area. BLM would be willing to continue coordination with the Henry Mountain Resource Area Permittees' Committee and the Richfield District Grazing Advisory Board.

**58.3** Please refer to Letter Response 40.4.

**58.4** Please refer to Letter Responses 12.1 and 52.26.

**58.5** Please refer to the second paragraph in Oral Testimony Response 41.



Comment Letter 59

Mr. Don Pendleton  
District Manager  
Richfield District BLM  
150 East, (200 North)  
Richfield, Utah 84701

Box 120  
Torrey Utah 84775  
Tel. 24 1983

Dear Mr. Pendleton:

I would like to submit a proposal for you're consideration and response, concerning the South Caineville Mesa, which is currently designated as un-allotted in the Henry Mtn. DEFS.

The last known use was made as a private allotment, livestock were rotated between a nearby ranch and the mesa during the fall, winter and spring grazing season. The ranch was used to take care of the stock when there was no water or snow available on the mesa. The rest of the allotment (summer) grazing was done on the drought ridges.

The South Caineville Mesa lies within the boundary of the Blue Bench Allotment, where most of my grazing privileges are located. Use of the mesa would tend to reduce the usage of the heavily grazed areas of the blue bench Allotment, as well as enhance the flexibility and the quality of my ranching and livestock operation.

Mr. Glenn Paterson informed me that the BLM estimate of the cost of repairing the Mesa trail is estimated to be \$19000.00. (Making the trail possible for other users other than grazing). (No details at specifications).

My proposal is this:-- I will with the use of a small front end loader, widen and repair the existing trail. The upper portion and through the Rim-rock would be widened and re-sloped with the use of Jackhammer and explosives. Once the loader is on top it would be used to clean existing water traps and to construct additional water holes. Access would be limited to two wheel vehicle only. The BLM allocate to me the 457 ALMs (previously determined carrying capacity) to be used when water is available, consistent with good management practices, protecting range potential. The cost of trail work and water development could be subtracted from grazing fees. Also; 100 ALMs of my SUSPENDED non-use in the Blue Bench Allotment may be transferred onto the Mesa Allotment. The South Caineville Mesa would be a private or separate allotment.--Hillings would be based on actual use records at the end of each grazing season.

Your consideration of this proposal is greatly appreciated.

Yours Truly

Les Jackson

NOTE! 25 YEARS OF NON-USE FOR THIS MESA.

Response Letter 59

59.1

In 1982, the South Caineville Mesa was designated as an Area of Critical Environmental Concern and is presently being managed to preserve its natural systems for scientific and educational purposes. BLM determined that this area has special worth because natural biological and physical processes occur unhindered there; this area can be used to study and evaluate the effects of man's intervention in the natural environment. After analyzing values to be gained from other uses, including grazing, BLM concluded that the potential educational values obtained from managing the South Caineville Mesa as a natural area outweighed values obtained from other uses.



February 27, 1983

Mr. Donald C. Pendleton  
District Director  
Bureau of Land Management  
150 East 900 North  
Richfield, Utah 84701

Dear Mr. Pendleton:

In order to reinforce the verbal testimony I provided at the hearing December 1, 1982 on the Henry Mountain Grazing Draft Environmental Impact Statement, I am providing you with detailed comments on the allotments of critical concern to my livestock operation and my economic survival. I am compelled to make these comments because none of the alternatives in the document is acceptable to me or my associate permittees. Each of the alternatives has both good and bad points, but none contains a unanimous set of actions that is compatible to all concerned interests. I need not remind the BLM that the livestock industry in Wayne and Garfield counties is absolutely critical to our survival. We realize the importance to preserve the area and to maintain big game herds at reasonable levels. Unfortunately, the alternatives presented leave little opportunity for the permittee to be a part of the decision making process. You must admit that most permittees have been grazing cattle in the Henry Mountains allotments longer than the BLM has existed. We know the range, we know its potential and its limitations so why not take advantage of our background and range experience. Together we can forge acceptable solutions that may not fit the textbook alternatives you have proposed.

Using the above as introduction, I offer the following specific comments:

1. Page 2, Table 1. Although I disagree with all of the alternatives, it appears that any range improvements for Alternatives C, D and E or other that may emerge should be scheduled. How can we as permittees make plans and commitments without knowing when the BLM intends to implement the improvements?

2. Page 16, Table 2-1.

a. Control of Predators: No where in the planning process that leads to the preferred alternative is the control of predators addressed. It is common knowledge that most sheep operations were removed from the Henry Mountains due to the threat of predators. The BLM and all parties involved should attack this problem in a united effort.

Page 2

b. Poaching: Poaching of wildlife and livestock continue to be a serious problem in the Henry Mountains. Any planning alternative should contain annual attrition factors due to poaching effect upon the livestock and big game herds.

c. In the development of planning alternatives, the BLM must be more aware that the primary users of the area should also be the primary developers of management policies and actions. All too often those individuals, groups, or agencies who have little economic investment at stake are the ones who influence the ultimate decisions. Any individual, group, or agency not directly and economically involved with private investments in grazing should be heard in an advisory capacity only. The range management and actions should be left to the BLM and each individual permittee in an effort to seek optimum plans for management and distribution of livestock.

3. Page 17, Table 2-2.

a. Pennell Allotment: There should be no cut in this allotment from the active preference. Depending upon the decision for the Mt. Pennell Wilderness Study Area (We are urging no wilderness), the percent increase of livestock should be based on any percentage increase of Bison. Bison should not be increased beyond the 200 head limit agreed to by DWR unless livestock forage is increased proportionately. Deer should be increased to full capacity. Additionally, this allotment should be under full multiple-use, including energy development, timbering, back packing, and other outdoor recreation. Development of the allotment should include chaining, burning and water development (water development for camping should be located away from livestock water developments). Since this area is a very suitable allotment, I recommend it be a two-pasture rotation system. I oppose the three-pasture system because of its inherent production limitations.

b. Bullfrog Allotment: There should be no cut. Actually I recommend a 10 percent increase over the next 10 year period. The problem associated with this allotment is that due to lack of water developments, 40 percent of the allotment could be used productively with adequate water. Bison do not roam this allotment. The physical barriers of cliffs and ledges prohibit it; therefore, I am recommending a reduction of 74 ADUs to 25 ADUs for Bison in this allotment. The allotment is not a problem for Deer. Actually Deer could be increased. The bird habitat could also be increased with water developments.

Additionally, I recommend the two-pasture rotation system with an annual monitoring of the range. Reseeding and water developments are essential to this allotment. Further, this allotment offers full multiple-use benefits including energy development and recreational activities. As an example, a reasonable amount of area in this allotment could be set aside for off-road vehicle recreation.



Page 3

4. Page 25. I have noticed that Beaver are in the planning for the headwaters of Bullfrog Creek. I oppose this because of its potential for restricting stream flow and thereby, reducing water available for livestock. Down stream there are numerous other locations of Beaver Habitat in Southern Utah that could be preserved that will not have the impact of this action.

5. Page 43, Table 3-3. There are discrepancies in the licensed use for the Bullfrog Allotment. Eighty-two percent of the allotment is stated to be in fair or better condition while 28 percent is said to be declining. I question the 28 percent declining since 40 percent of the range is not used because there are no water developments. I question the 7 trend plots. The ones I have seen are inadequate and are not representative of the range. The figures for the Fennell Allotment reveal favorable condition of that range and I believe the 8 percent shown as declining (if accurate) is that range sacrificed around water holes. As my earlier comments indicate, this allotment should not be cut. With reseeds and burns, the allotments potential can be increased for cattle, sheep, bison, and deer.

6. Page 73, Table 3-13. The average use during the drought year of 1977 for the Bullfrog Allotment is erroneous. There was absolutely no use in 1977. We trucked our cattle to New Mexico during that period. This action demonstrated our concern for the range and our actions to preserve it during bad years. This was a costly operation. In addition to transportation and pasture rental, several of our cattle were rustled. I feel your records for most years are not right.

7. Page 80. "Reviewers of this EIS, however, should recognize the limitations of vegetation inventory data. While this data is adequate for purposes of planning and analysis, it must be supported by the results of monitoring studies before making forage allocation decisions." I submit that the uncertainties revealed above invalidate the data used and throughout the study, particularly since it is from 5 to 5 years old. Until intensive monitoring studies have been done from an adequate number of and placement of range trend plots the data contained in this EIS is suspect. I suggest at least 10 more plots on the Bullfrog allotment.

In summary, I am deeply concerned with the options outlined in the EIS. Although there appears to be some good in all of the alternatives, there is not a single alternative acceptable that incorporates the general and specific concerns and actions needed by myself and other permittees. I, therefore, urge the BLM to work more directly with permittees, especially on the range tour before any cut or increases are thought about. I also suggest to you that the weight you have used for range cows in determining the amount of feed consumed is too high. My cattle will not average over 850 pounds. Also lactating cows are not on winter range more than two months out of the seven that they can be there.

In closing may I say that I appreciate the opportunity to express my views on this critical problem.

Sincerely,

Elías Brinkerhoff  
Bicknell, Utah

Dear Sirs,

I am writing to you about your Draft Environmental Impact Statement for the Henry Mountain Resource Area. I am involved in cattle operations with my father (Les O. Jackson) and my brother. Located in Carnville, Utah, I have lived here since my birth and have seen the Bureau of Land Management slowly manage the cattle-men out of business.

Instead of preserving resources, B.L.M. is denying citizens of this country a renewable resource (Range Land).

As to your types of range studies, The S.V.I.M. (soil vegetation inventory method) is a very poor method. It has to much change of error and should not be used in this DEIS.

I feel trend plot is a fair study when properly read and placed. I felt that in many instances this was poorly done. This ~~one~~ turn could determine much of the fundings of this DEIS. Which is probably why the trend studies you have done follow climate changes instead of grazing. Also damage rodent activity is not recognized in this DEIS. Which I know have an effect on condition of range and trend studies. You also use the year 1977 in part of your trend studies (APPENDIX 2, table 1).



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1977 was the driest year in the last fifteen years. For example, average moisture for this area in 1977 was 2.8 inches. The average for 1975-1980 was 8.4 inches. And yet the overall trend was satisfactory. But still a poor year to be used such as it was.

Now as to your criteria on percent of allotment that is range land (50% slope, 4 miles from water). I feel this is also far out of proper proportion. And instead of writing it off from range land because of deer you should be working with permittees in developing water. So that it may be used to its greatest potential.

Also, I feel that there is no one to control the buffalo situation on the Henry Mountains. Instead of being managed and scattered so as to use all of their areas they concentrate in the area at a time (usually as close to water as they can stay). While cattle will trail to and from water out and into different feeding areas. While cattlemen have to keep cattle in proper allotments and pastures. Buffalo roam where they want to also, you can't increase the deer by increasing their AUMs. The deer will increase when predators (coyotes, lions, etc.) are reduced.

I feel basically that this DEIS is very biased and opinionated. For

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example, from my observation less than 5% of soil disturbed show damage the rest shows improved forage production from stirring. While in your DEIS you speak of over grazing and a concern for over grazing and erosion.

You have also used 800 lbs. of air dried feed per AUM while the USU Extension Service have come up with 649 lbs. air dried feed per cow per AUM a difference of 23%. You have also used 1000 lbs. as the weight of a cow where I think you will find their weight more in the area of 800-900 lbs.

I feel that this DEIS (if initiated) will have a more drastic economic effect on this area than you realize or have stated. Ranching and farming ~~and~~ have been the basic industry of this area for years.

As to your unallotted areas not put in because of inaccessibility (as you state).

Dry Lakes is accessible but you have chosen to give it to the Fish and Game and then buffalo.

Flint Trail also accessible and instead of using extra feed in other allotments in case of emergencies. You take range land away to where it may only be used only every five to ten years if ever.

North and South Cainville Meads are accessible and have been used



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within the last few years.  
 Little Rockies again are accessible and are or were used by the allotments around it.  
 These unallotted areas should be reinstated along with their proper amounts of ALMS.  
 I feel that another 5 to 10 year study period should be used with the cattlemen taking part in your DEIS. The cattlemen should not just be with but should have a say in placing of trend plots. Then should be allowed to participate in reading of trend plots. I feel a new method called Species Frequency Study should be used in this period. It should be adjusted to show results of grazing or lack of it instead of climate, rodents, and natural replacement.  
 I also support using 7 year average use dropping high-low years instead of 5 year average use.  
 I feel stockmen should have been and should be involved in every bit of range management instead of just the cuts and the selling off of operations. This I think you should duly consider. And I would like an answer as to why they weren't. Maybe because this only happens in America.  
 I sincerely hope you remember

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and re-evaluate your DEIS and maybe try another study period with better studies, co-operation with cattlemen, and a different out look toward this situation.

Neal George Jackson  
 RFD, Box #5  
 Caineville Utah 84775







APPENDIX 1  
PUBLIC LAW 97-341: PHASEOUT OF GRAZING PRIVILEGES IN  
CAPITOL REEF NATIONAL PARK

Ninety-seventh Congress of the United States of America

AT THE SECOND SESSION

*Begun and held at the City of Washington on Monday, the twenty-fifth day of January,  
one thousand nine hundred and eighty-two*

An Act

To provide for a study of grazing phaseout at Capitol Reef National Park, and  
for other purposes.

*Be it enacted by the Senate and House of Representatives of the  
United States of America in Congress assembled,*

SECTION 1. Where any Federal lands included within the boundary  
of Capitol Reef National Park are legally occupied or utilized on the  
date of enactment of this Act for grazing purposes, pursuant to a  
lease, permit, or license which is—

(1) for a fixed term of years issued or authorized by any  
department, establishment, or agency of the United States, and

(2) scheduled for termination before December 31, 1992,

notwithstanding the provisions of section 3 of the Act of December  
18, 1971, entitled "An Act to establish the Capitol Reef National  
Park in the State of Utah" (85 Stat. 740; 16 U.S.C. 273b), the  
Secretary of the Interior shall allow the persons holding such  
grazing privileges (or their heirs) to retain such grazing privileges  
until December 31, 1994.

SEC. 2. The Secretary of the Interior, acting through the Director  
of the National Park Service, in cooperation with the Director of the  
Bureau of Land Management, shall take such steps as may be  
necessary to, within ninety days after the enactment of this Act,  
enter into a contract with the National Academy of Sciences for the  
purpose of conducting a study of grazing in Capitol Reef National  
Park and vicinity to:

(1) determine the historic and current impact of grazing upon  
the natural ecosystem and cultural resources of the park;

(2) determine the impacts of grazing upon visitor use within  
the park;

(3) evaluate alternatives to grazing within Capitol Reef  
National Park including means to increase grazing carrying  
capacity on adjacent Bureau of Land Management lands;

(4) determine the economic impact upon grazing permit hold-  
ers, and on the local economy, if such permits were terminated;  
and

(5) include such other information and findings as may be  
deemed necessary by the Secretary of the Interior.

Such study shall be conducted in accordance with the best scientific  
methodology (as set forth by the National Academy of Sciences) and  
shall be transmitted by the National Academy of Sciences to the  
Committee on Energy and Natural Resources of the United States  
Senate, to the Committee on Interior and Insular Affairs of the  
United States House of Representatives, and to the Director of the  
National Park Service no later than January 1, 1992. Progress  
reports regarding the study shall be transmitted to the above Com-  
mittees on January 1, 1984, and January 1 of each year thereafter.

SEC. 3. There are hereby authorized to be appropriated such sums  
as may be necessary to carry out the purposes of this Act. No



APPENDIX 1 (cont.)

S.1872-2

authority under this Act to enter into contracts or to make payments shall be effective except to the extent and in such amounts as provided in advance in appropriations Acts. Nothing in this section shall be construed to prevent the Secretary of the Interior from utilizing, for purposes of the contract referred to in section 2, funds which are available to the Secretary for such purposes under authority of law.

*Thomas S. Omniff*

*Speaker of the House of Representatives.*

*Strom Thurmond*

*President of the Senate pro tempore*

APPROVED

OCT 15 1982

*Ronald Reagan*



## APPENDIX 2 CULTURAL RESOURCES MEMORANDUM OF UNDERSTANDING

HENRY MOUNTAIN GRAZING MANAGEMENT ENVIRONMENTAL IMPACT STATEMENT  
BETWEEN  
THE BUREAU OF LAND MANAGEMENT  
AND  
THE UTAH STATE HISTORIC PRESERVATION OFFICER

### I. PURPOSE

The Bureau of Land Management, hereinafter referred to as the Bureau, is preparing the Henry Mountain Grazing Management Environmental Impact Statement (Henry Mountain EIS) under the provisions of the National Environmental Policy Act of 1969. The Bureau has determined that cultural values could be damaged or lost as a result of actions proposed in the Henry Mountain EIS. The following kinds of actions are proposed on public lands administered by the Bureau:

- a. Pipeline construction
- b. Reservoir construction
- c. Fenceline construction
- d. Vegetation Modification (e.g., chaining)
- e. Water development and well construction

The Bureau has the responsibility to protect the cultural values on the lands administered by the Bureau. The Utah State Historic Preservation Office, hereinafter referred to as the State, is available to assist and advise those working with these federal regulations. In this MOU, "cultural resources" means data and sites which have archaeological, historical, architectural, or cultural importance and interest.

The Bureau requires investigators to be qualified to evaluate these "cultural resources".

### II. AUTHORITY

This MOU is authorized under the Federal Land Policy and Management Act of 1976 and the National Historic Preservation Act of 1966. It is in accord with Bureau policies and programs.

### III. RESPONSIBILITIES AND PROCEDURES

The Bureau complies with 36 CFR 800 in identifying sites which are listed in or eligible for inclusion in the National Register of Historic Places.

A. As part of the planning and environmental analysis required prior to major grazing management decisions, the Bureau will search for archaeological and historical literature concerning the Henry Mountain area. Literature and records searches have been conducted for all public lands that would be affected by the Henry Mountain proposal.

B. After completing the planning and environmental analysis process, should the proposed management be implemented, the Bureau will inform project participants of, monitor compliance with, and enforce the following stipulations:



## APPENDIX 2 (cont.)

1. Prior to initiation of ground-disturbing activities, literature searches and intensive surveys will be undertaken on all areas which would be disturbed.
2. Wherever possible and feasible, cultural resources will be avoided by construction and related activities. This will be accomplished mainly by regulating vegetation modification activities and adjusting the location of other facilities such as pipelines and fences. Significant cultural resources facing inundation due to proposed reservoir construction will be salvaged to recover data that would otherwise be lost.
3. A professional archaeologist may be required to be present when ground-disturbing operations are underway.
4. Subsurface cultural resources that are encountered during any construction will be salvaged if there is no other recourse in such a situation.

C. Wherever it is not possible and feasible to avoid sites that contain cultural values, the Bureau will consult with the State to determine the most satisfactory means of mitigating damage, as required by 36 CFR 800.

D. The Bureau will provide cultural resource reports, technical reports, and other pertinent material to the State so that the State can maintain a central depository of reports which will insure that no duplication will be required by the Bureau in the future.

### IV. IMPLEMENTATION

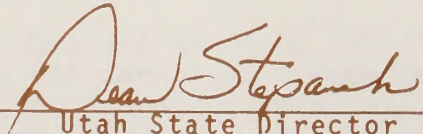
A. This MOU will become effective on the date of the last signature on this MOU.

B. Either party may request revision or cancellation of this agreement by written notice, not less than 30 days prior to the time when such action is proposed.

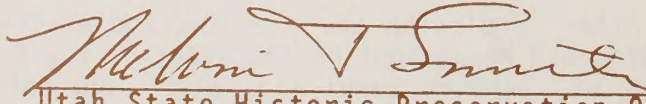
C. Any problems resulting from this agreement which cannot be resolved by the Bureau in consultation with the State will be referred to the Secretary of the Interior and the Advisory Council on Historic Preservation for resolution.

D. Nothing in this MOU should be construed as the State requiring compliance with federal regulations. The purpose of this MOU is to make the State aware of current federal procedures and regulations. These procedures will also allow copies of reports to be made available for central filing, so work is not unnecessarily duplicated.

2/5/82  
Date

  
Utah State Director  
Bureau of Land Management  
Department of the Interior

2-5-82  
Date

  
Utah State Historic Preservation Officer



### APPENDIX 3 SUMMARY OF VEGETATION TREND, UTILIZATION, DIET AND CLIMATE DATA

This appendix, which is the basis for Table 3-3, summarizes vegetation trend, utilization, and diet data. It is divided into two sections. Section one lists plant species used as key species within each allotment. Section two includes the rationale used in developing diets and forage use levels.

#### Key Plant Species

Plant species used as key or index species within each allotment in areas key to livestock grazing are listed in the table below. The plant species used in deriving trend indexes and for purposes of determining forage utilization are identified as an "a". These species fit the criteria generally used in defining key species (BLM Manual 4412 (SRM, 1974).

In addition to key plant species, records of other indicator species were recorded during the soil-vegetation inventory. Changes in the amounts of cheatgrass, Russian thistle, snakeweed, big sagebrush, blue grama, loco weed, lupine, etc., plants were recorded and used as a basis for assessing trend.

Index of Key and Indicator Species<sup>a</sup>

Plant Symbol	Scientific Name	Common Name	Growth Form
Agcr	<i>Agropyron cristatum</i>	Crested wheatgrass	PIG
Agda	<i>Agropyron dasystachyum</i>	Thickspike wheatgrass	PNG
Adge2	<i>Agropyron desertorum</i>	Standard crested wheatgrass	PIG
Agin	<i>Agropyron inerme</i>	Beardless bluebunch wheatgrass	PNG
Agin2	<i>Agropyron intermedium</i>	Intermediate wheatgrass	PIG
Agsm	<i>Agropyron smithii</i>	Western wheatgrass	PNG
Agsp	<i>Agropyron spicatum</i>	Bluebunch wheatgrass	PNG
Amela	<i>Amelanchier</i> spp.	Serviceberry	NS
Amal2	<i>Amelanchier alnifolia</i>	Saskatoon serviceberry	NS
Amut	<i>Amelanchier utahensis</i>	Utah serviceberry	NS
Arlo3	<i>Aristida longiseta</i>	Red threeawn	PNG
Artem	<i>Artemesia</i> spp.	Sagebrush	NS
Arar8	<i>Artemesia arbuscula</i>	Low sagebrush	NS
Ararn	<i>Artemesia arbuscula nova</i>	Black sagebrush	NS
Arbi	<i>Artemesia biglovii</i>	Bigelow sagebrush	NS
Arfi2	<i>Artemesia filifolia</i>	Sand sagebrush	NS
Arfr 4	<i>Artemesia frigida</i>	Fringed sagewort	NHS
Artr2	<i>Artemesia tridentata</i>	Big sagebrush	NS
Astra	<i>Astragalus</i> spp.	Locoweed	PNF
Atrip	<i>Atriplex</i> spp.	Saltbush	NS
Atca2	<i>Atriplex canescens</i>	Fourwing saltbrush	NS
Atco	<i>Atriplex confertifolia</i>	Shadscale	NS
Atco4	<i>Atriplex corrugata</i>	Mat saltbrush	NHS
Atnu2	<i>Atriplex nuttallii</i>	Nuttall saltbush	NHS
Atnuc	<i>Atriplex nuttallii cuneata</i>	Wedgeleaf nuttall saltbush	NHS
Bogr2	<i>Bouteloua gracilis</i>	Blue grama	PNG
Boer4	<i>Bouteloua eriopoda</i>	Black grama	PNG



# APPENDIX 3

Plant Symbol	Scientific Name	Common Name	Growth Form
Brin2	<i>Bromus inermis</i>	Smooth Brome	PIG
Brte	<i>Bromus tectorum</i>	Cheatgrass	AIG
Carex	<i>Carex</i> spp.	Sedge	PNGL
Cele3	<i>Cercocarpus ledifolius</i>	Curlleaf mountain mahogany	NS
Celei2	<i>Cercocarpus ledifolius</i> intricatus	Littleleaf mountain mahogany	NS
Cemo2	<i>Cercocarpus montanus</i>	Birchleaf mountain mahogany	NS
Cheno	<i>Chenopodium</i> spp.	Goosefoot	ANF & AIF
Chna2	<i>Chrysothamnus nauseosus</i>	Rubber rabbitbrush	NS
Chvis8	<i>Chrysothamnus viscidiflorus</i>	Douglas rabbitbrush	NS
Chvis	<i>Chrysothamnus viscidiflorus</i> stenophyllus	Small rabbitbrush	NS
Comes	<i>Cowania mexicana stansburiana</i>	Stansbury cliffrose	NS
Cora	<i>Colegyne ramosissima</i>	Blackbrush	NS
Dagl	<i>Dactylis glomerata</i>	Orchardgrass	PIG
Ephed	<i>Ephedra</i> spp.	Mormon tea	PNS
Epne	<i>Ephedra nevadensis</i>	Nevada Mormon tea	PNS
Epto	<i>Ephedra torreyana</i>	Torrey Mormon tea	PNS
Epvi	<i>Ephedra viridis</i>	Green Mormon tea	PNS
Eula5	<i>Eurotia lanata</i>	Winterfat	NHS
Feoc2	<i>Festuca octoflora</i>	Sixweeks fescue	ANG
Feov	<i>Festuca ovina</i>	Sheep fescue	PNG
Gusa2	<i>Gutierrezia sarothrae</i>	Broom, snakeweed	NHS
Hija	<i>Hilaria jamesii</i>	Galleta (curlygrass)	PNG
Heki	<i>Hesperochloa kingii</i>	Spike fescue	PNG
Lupin	<i>Lupinus</i> spp.	Lupine	PNF
Luca	<i>Lupinus caudatus</i>	Tailcup lupine	PNF
Mesa	<i>Medicago sativa</i>	Alfalfa	PIF
Opunt	<i>Opuntia</i> spp.	Pricklypear	NS4S
Orhy	<i>Oryzopsis hymenoides</i>	Indian ricegrass	PNG
Oxytr	<i>Oxytropis</i> spp.	Crazyweed	PNF
Poa++	<i>Poa</i> spp.	Bluegrass	PNG
Pofe	<i>Poa fendleriana</i>	Muttongrass	PNG
Popr	<i>Poa pratensis</i>	Kentucky bluegrass	PIG
Pose	<i>Poa secunda</i>	Sandberg bluegrass	PNG
Putr2	<i>Purshia tridentata</i>	Antelope bitterbrush	NS
Sakat	<i>Salsola kali</i> var. <i>tenuifolia</i>	Russian thistle	AIF
Sihy	<i>Sitanion hystrix</i>	Squirreltail	PNG
Sporo	<i>Sporobolus</i> spp.	Dropseed	PNG
Spai	<i>Sporobolus airoides</i>	Alkali sacaton	PNG
Spc04	<i>Sporobolus contractus</i>	Spike dropseed	PNG
Spcr	<i>Sporobolus cryptandrus</i>	Sand dropseed	PNG
Stipa	<i>Stipa</i> spp.	Needlegrass	PNG
Stco4	<i>Stipa comata</i>	Needle-and-thread grass	PNG
Stle	<i>Stipa lettermani</i>	Letterman needlegrass	PNG
ANF	Annual native forb		
ANG	Annual native grass		
ANGL	Annual native grasslike		



### APPENDIX 3

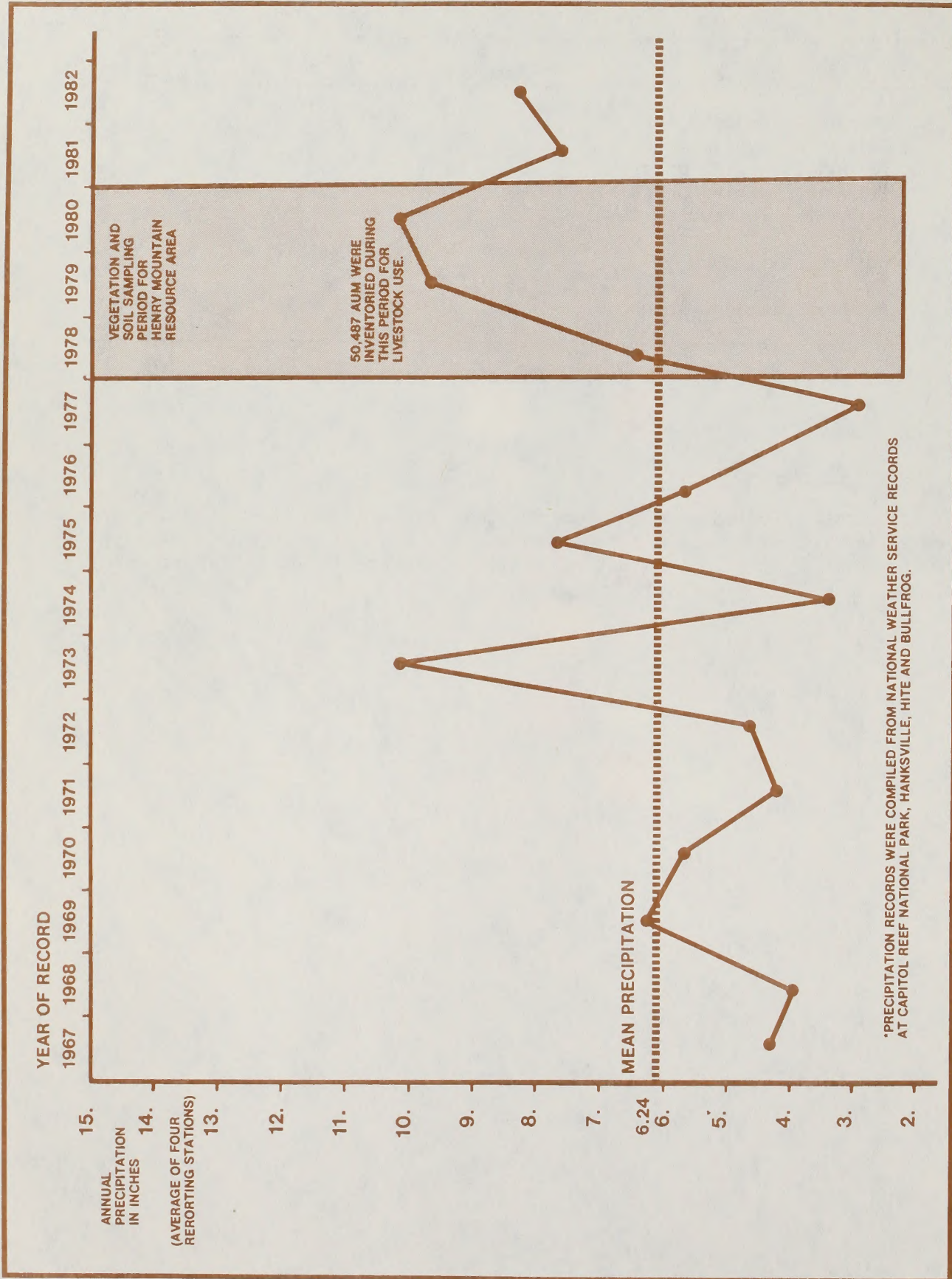
Plant Symbol	Scientific Name	Common Name	Growth Form
AIF	Annual introduced forb		
PNF	Perennial native forb		
PNG	Perennial native grass		
PNGL	Perennial native grasslike		
PIF	Perennial introduced forb		
PIG	Perennial introduced grass		
NFH	Native Half shrub		
NS	Native shrub		
NS4S	Native succulent shrub		

<sup>a</sup>Symbols and scientific names are from the USDA, Soil Conservation Service (1978).

#### Diets and Forage Use Levels

This section includes Staff Reports that (a) outline the rationale and procedures used in estimating forage production; and (b) explain the development and use of diets used to assign available forage to different kinds of animals.





APPENDIX 3  
FIGURE 1  
PRECIPITATION RECORDS\* FOR  
THE HENRY MOUNTAIN PLANNING AREA



TABLE 1  
Trend Studies

Code No.	Allotment	Pasture and Plot No.	Years of Records	Index <sup>a</sup> or Key Species	Percent Utilization						Trend of Key <sup>c</sup>				Photo Trend	Apparent Condition and Trend <sup>c</sup>		Longtime Estimate		
					Browse <sup>b</sup>			Grass <sup>b</sup>			Browse	Seedling	Cool	Warm		Photo Trend	Index		1977 <sup>d</sup>	Estimate
					1	2	3	1	2	3										
0100	Blue Bench	Oak	0-1 69-80	<sup>a</sup> Hija, <sup>a</sup> Atco, <sup>a</sup> Atca2, <sup>a</sup> Ephed	70	--	--	17-68	--	13	+	+	--	+	+	4	+	S+		
		Oak	0-2 69-80	<sup>a</sup> Hija, <sup>a</sup> Orhy, <sup>a</sup> Sprr, <sup>a</sup> Atco	10	--	--	32-64	--	19	+	+	+	+	+	3	+	S+		
		Coaly	C-1 69-80	<sup>a</sup> Hija, <sup>a</sup> Orhy, <sup>a</sup> Atco, <sup>a</sup> Atco4	80	20-60	--	--	--	--	--	--	--	+	+	3	+	U+		
		Coaly	C-2 69-80	<sup>a</sup> Hija, <sup>a</sup> Orhy, <sup>a</sup> Sprr, <sup>a</sup> Atrip	--	--	--	72-83	--	--	--	--	--	+	+	3	+	S+		
		Points	P-1 69-80	<sup>a</sup> Hija, <sup>a</sup> Orhy, <sup>a</sup> Sprr, <sup>a</sup> Ephed	67	--	--	35-17-83	--	53-58	+	+	+	+	+	3	+	S+		
		Points	P-2 69-80	<sup>a</sup> Hija, <sup>a</sup> Orhy, <sup>a</sup> Sprr, <sup>a</sup> Atco, <sup>a</sup> Ephed	60	--	--	40-67-84	--	31-51	+	+	+	+	+	3	+	S+		
		Points	P-3 72-80	<sup>a</sup> Hija, <sup>a</sup> Orhy, <sup>a</sup> Sprr, <sup>a</sup> Atco	--	--	--	20-80	--	--	--	--	--	+	+	3	+	--		
0101	Bullfrog	Points	P-4 72-80	<sup>a</sup> Hija, <sup>a</sup> Orhy, <sup>a</sup> Sprr	--	--	--	--	--	--	--	--	+	+	+	4	+	--		
		Blue Hills	8H-1 68-80	<sup>a</sup> Hija, <sup>a</sup> Orhy, <sup>a</sup> Sprr	--	--	--	37-83	--	--	--	--	+	+	+	3	+	U+		
		Hills	8H-2 68-80	<sup>a</sup> Hija, <sup>a</sup> Orhy, <sup>a</sup> Sprr, <sup>a</sup> Atca2	--	--	--	50-88	--	--	--	--	+	+	+	3	+	U+		
		Hills	8H-6 68-80	<sup>a</sup> Hija2, <sup>a</sup> Artr2, <sup>a</sup> Gusa2	--	--	--	34-75	--	--	--	--	+	+	+	4	+	S+		
		Hills	8H-7 68-80	<sup>a</sup> Hija, <sup>a</sup> Eula5, <sup>a</sup> Atco, <sup>a</sup> Gusa2	--	--	--	33-61	--	--	--	--	+	+	+	4	+	S+		
		Hills	8H-8 68-80	<sup>a</sup> Hija, <sup>a</sup> Atco	--	--	--	--	--	--	--	--	+	+	+	3	+	S+		
		Clay Pt.	CP-1 68-80	<sup>a</sup> Hija, <sup>a</sup> Orhy, <sup>a</sup> Epne, <sup>a</sup> Atca2	36-64	--	--	66-36-73	--	10-16	+	+	--	+	+	4	+	U+		
0102	Burr Point	Clay Pt.	CP-2 68-80	<sup>a</sup> Hija, <sup>a</sup> Orhy, <sup>a</sup> Epvi	36	--	--	60-40-67	--	38	+	+	+	+	+	3	+	S+		
		West	8-1 72-80	<sup>a</sup> Hija, <sup>a</sup> Orhy, <sup>a</sup> Ephed, <sup>a</sup> Gusa2	--	--	--	15-50	--	10-28	--	--	--	+	+	3	+	U+		
		West	8-2 72-80	<sup>a</sup> Hija, <sup>a</sup> Orhy, <sup>a</sup> Sprr, <sup>a</sup> Ephed	30-40	--	--	21-52 10-44	--	10-38	+	+	--	+	+	4	+	U+		
		East	8-3 72-80	<sup>a</sup> Orhy, <sup>a</sup> Artr2	--	--	--	14	--	17-73	--	--	--	+	+	3	+	U+		
		East	8-4 72-80	<sup>a</sup> Orhy, <sup>a</sup> Hija, <sup>a</sup> Ephed	--	--	--	14-43	--	16-40	+	+	--	+	+	3	+	U+		
		East	8-5 72-80	<sup>a</sup> Orhy, <sup>a</sup> Hija, <sup>a</sup> Sprr, <sup>a</sup> Ephed, <sup>a</sup> Atca2, <sup>a</sup> 54-70	--	--	--	10-40 43-57	--	10-20	--	--	--	+	+	4	+	U+		
		East	8-6 72-80	<sup>a</sup> Gusa2	--	--	--	--	--	--	--	--	--	+	+	4	+	S+		
0600	Cathedral	East	8-7 73-80	<sup>a</sup> Orhy, <sup>a</sup> Ephed, <sup>a</sup> Hija, <sup>a</sup> Corr	48	--	--	41-52	--	22-38	+	+	+	+	+	3	+	--		
		RO-1 68-74 <sup>f</sup>		<sup>a</sup> Orhy, <sup>a</sup> Hija, <sup>a</sup> Atca2, <sup>a</sup> Epned	62	--	--	64	--	--	+	+	+	+	+	3	+	S+		
		MO-1 68-80		<sup>a</sup> Orhy, <sup>a</sup> Atca2	--	--	--	--	--	--	+	+	+	+	+	4	+	S+		
		MO-2 68-80		<sup>a</sup> Hija, <sup>a</sup> Orhy, <sup>a</sup> Atca2	--	--	--	--	--	--	+	+	+	+	+	3	+	S+		
		MO-3 68-80		<sup>a</sup> Hija, <sup>a</sup> Orhy, <sup>a</sup> Atca2	--	--	--	--	--	--	+	+	+	+	+	4	+	--		
		MO-4 68-80		<sup>a</sup> Orhy, <sup>a</sup> Sprr, <sup>a</sup> Bogr	--	--	--	--	--	--	+	+	+	+	+	4	+	--		
		FB-1 68-80		<sup>a</sup> Hija, <sup>a</sup> Orhy	--	--	--	--	--	--	--	+	+	+	+	3	+	U+		
0103	Cedar Point	FB-2 68-80		<sup>a</sup> Hija, <sup>a</sup> Orhy, <sup>a</sup> Atco	--	--	--	--	--	--	+	+	+	+	+	3	+	U+		
		FB-3 73-80		<sup>a</sup> Atco4	--	--	--	--	--	--	--	--	--	+	+	3	+	--		
		C-1 73-80		<sup>a</sup> Orhy, <sup>a</sup> Epne	Average for 1969 90%						+	+	+	+	+	3	+	U+		
		C-2 73-80		<sup>a</sup> Orhy, <sup>a</sup> Epne	Average for 1969 70%						+	+	+	+	+	3	+	S+		
		C-3 73-80		<sup>a</sup> Orhy, <sup>a</sup> Epne	Average for 1969 70%						+	+	+	+	+	3	+	S+		
		C-4 73-80		<sup>a</sup> Eula5, <sup>a</sup> Hija	Average for 1969 31%						+	+	+	+	+	3	+	U+		
		Eagle	EB-1 67-80	<sup>a</sup> Aggr, <sup>a</sup> Sthy, <sup>a</sup> Orhy, <sup>a</sup> Ephed, <sup>a</sup> Bogr, <sup>a</sup> Amut, <sup>a</sup> Cemo	76	60	--	71-76	75	48	--	+	+	+	+	2	+	S+		
0104	Crescent Creek	Mountain	EB-2 67-80	<sup>a</sup> Aggr, <sup>a</sup> Sthy, <sup>a</sup> Ephed, <sup>a</sup> Bogr	75	--	--	77-73 31-18	61	--	--	--	+	+	3	+	U+			
		Mountain	M-1 68-80	<sup>a</sup> Bogr, <sup>a</sup> Sthy, <sup>a</sup> Ararn, <sup>a</sup> Poa, <sup>a</sup> Agsp, <sup>a</sup> Stipa	19	75	36	15-75	--	--	+	+	+	+	+	4	+	U+		
		Mountain	M-2 68-80	<sup>a</sup> Poa, <sup>a</sup> Artem, <sup>a</sup> Stipa, <sup>a</sup> Sthy, <sup>a</sup> Agsp	--	--	--	75	46	60	+	+	+	+	+	4	+	U+		
		H-1 74-80		<sup>a</sup> Orhy, <sup>a</sup> Hija, <sup>a</sup> Atca2, <sup>a</sup> Epne	--	--	--	48	--	--	--	+	+	+	+	3	+	U+		
		H-2 74-80		<sup>a</sup> Orhy, <sup>a</sup> Hija, <sup>a</sup> Artr2	--	--	--	10	--	--	--	+	+	+	+	3	+	S+		
		H-3 74-80		<sup>a</sup> Hija, <sup>a</sup> Gusa2	--	--	--	--	--	--	--	+	+	+	+	4	+	U+		
		H-4 74-80		<sup>a</sup> Hija, <sup>a</sup> Atco, <sup>a</sup> Orhy	--	--	--	51-76	--	--	--	+	+	+	+	3	+	U+		
0107	Hanksville	H-5 74-80		<sup>a</sup> Hija, <sup>a</sup> Bogr, <sup>a</sup> Cgr	--	--	--	--	--	--	+	+	+	+	3	+	S+			
		H-6 74-80		<sup>a</sup> Hija, <sup>a</sup> Orhy, <sup>a</sup> Ephed, <sup>a</sup> Sprr	--	--	--	--	--	--	+	+	+	+	+	3	+	U+		



Code No.	Allotment	Pasture and Plot No.	Years of Records	Index <sup>a</sup> or Key Species	Percent Utilization						Trend of Key <sup>c</sup>				Apparent Condition and Trend <sup>c</sup>			
					Browse <sup>b</sup>			Grass <sup>b</sup>			Browse	Seedling	Cool	Warm	Photo Trend	Condition <sup>d</sup>	Index	1977 <sup>e</sup> Estimate
					1	2	3	1	2	3								
0603 Hartnet		BF-1 67-80		<sup>a</sup> Orhy, <sup>a</sup> Hija, <sup>a</sup> Atco, <sup>a</sup> Arf12, <sup>a</sup> Spai	26	--	--	4	--	--	+	+	+	+	3	+	U+	
		BF-2 67-80		<sup>a</sup> Hija, <sup>a</sup> Orhy, <sup>a</sup> Atco, <sup>a</sup> Arf12, <sup>a</sup> Spai	70	54	51	63	62	38	+	+	+	+	3	+	S+	
		BF-3 67-80		<sup>a</sup> Hija, <sup>a</sup> Atco, <sup>a</sup> Orhy, <sup>a</sup> Arf12, <sup>a</sup> Spai	--	--	--	56	68	--	10	23	+	+	3	+	S+	
		BF-4 --			--	--	--	--	--	--	--	--	--	--	--	--	S+	
Upper Hartnet		UH-1 67-80		<sup>a</sup> Orhy, <sup>a</sup> Hija, <sup>a</sup> Atco, <sup>a</sup> Spai	10	58	--	30	70	--	+	+	+	+	3	+	--	
		UH-2 67-80		<sup>a</sup> Orhy, <sup>a</sup> Hija, <sup>a</sup> Atco, <sup>a</sup> Spai	10	58	--	52	70	--	+	+	+	+	3	+	--	
		UH-3 67-80		<sup>a</sup> Orhy, <sup>a</sup> Atco, <sup>a</sup> Ararn, <sup>a</sup> Hija, <sup>a</sup> Spai	--	58	--	50	70	--	--	+	+	+	3	+	--	
		UH-4 67-80		<sup>a</sup> Orhy, <sup>a</sup> Sporo, <sup>a</sup> Epne, <sup>a</sup> Atca2, <sup>a</sup> Hija	82	--	--	74	78	--	--	+	+	+	4	+	--	
South Desert		SO-1 67-80		<sup>a</sup> Orhy, <sup>a</sup> Hija, <sup>a</sup> Atca2, <sup>a</sup> Spai	70	36	--	62-73	76	46-58	--	22-28	+	+	3	+	--	
		SO-2 67-80		<sup>a</sup> Orhy, <sup>a</sup> Hija, <sup>a</sup> Atca2, <sup>a</sup> Spai	70	36	--	74-66	76	46-58	--	22-28	+	+	3	+	--	
		SO-3 67-80		<sup>a</sup> Orhy, <sup>a</sup> Hija, <sup>a</sup> Atca2, <sup>a</sup> Spai	70	68	26-82	60	69	16-26	+	+	+	+	4	+	--	
		SO-4 67-80		<sup>a</sup> Orhy, <sup>a</sup> Hija, <sup>a</sup> Atca2, <sup>a</sup> Spai	70	68	26-82	60	69	16-26	+	+	+	+	4	+	--	
0108 Nasty Flat		SC-1 69-80		<sup>a</sup> Agcr, <sup>a</sup> Mesa	75	76	88	72	75	57	--	+	+	+	4	+	S+	
		H-1 68-80		<sup>a</sup> Poa, <sup>a</sup> Stle, <sup>a</sup> Agin, <sup>a</sup> Sihy	--	--	--	64	--	60	--	+	+	+	3	+	U+	
		H-2 68-80		<sup>a</sup> Poa, <sup>a</sup> Stle, <sup>a</sup> Arf12, <sup>a</sup> Sihy	--	--	--	36	39	--	--	+	+	+	4	+	U+	
		H-3 68-80		<sup>a</sup> Poa, <sup>a</sup> Stle, <sup>a</sup> Ararn, <sup>a</sup> Sihy, <sup>a</sup> Chvis, <sup>a</sup> Agcr, <sup>a</sup> Ararn, <sup>a</sup> Heki, <sup>a</sup> Sihy	--	--	--	44	48	--	55-39	+	+	+	4	+	U+	
Dugout		H-4 71-80		<sup>a</sup> Poa, <sup>a</sup> Ararn, <sup>a</sup> Heki, <sup>a</sup> Sihy	--	--	--	--	--	22-38	+	+	+	4	+	U+		
		O-1 69-80		<sup>a</sup> Stle, <sup>a</sup> Feov, <sup>a</sup> Agcr, <sup>a</sup> Mesa	--	--	--	88	70	50	47	+	+	+	2	+	S+	
					--	--	--	--	--	--	--	+	+	+	2	+	S+	
					--	--	--	--	--	--	--	+	+	+	2	+	S+	
0610 North Bench		N8-1 68-80		<sup>a</sup> Orhy, <sup>a</sup> Epto, <sup>a</sup> Hija, <sup>a</sup> Arf12, <sup>a</sup> Spai	16-40	--	--	38-50	--	--	+	+	+	3	+	S+		
		Atca2 76		<sup>a</sup> Orhy, <sup>a</sup> Epto, <sup>a</sup> Orhy, <sup>a</sup> Hija, <sup>a</sup> Spai	47-53	--	--	45-52	--	--	+	+	+	3	+	U+		
		Arf12		<sup>a</sup> Orhy, <sup>a</sup> Epto, <sup>a</sup> Orhy, <sup>a</sup> Hija, <sup>a</sup> Spai	47-53	--	--	30-40	--	--	+	+	+	3	+	U+		
		Orhy		<sup>a</sup> Epto, <sup>a</sup> Hija, <sup>a</sup> Spai, <sup>a</sup> Arf12	25	--	--	46-49	--	--	+	+	+	3	+	U+		
0109 Pernel		H-1 69-80		<sup>a</sup> Agcr, <sup>a</sup> Mesa, <sup>a</sup> Cemo2, <sup>a</sup> Putr2	--	--	10-75	--	--	12-64	--	+	+	2	+	U+		
		H-2 69-80		<sup>a</sup> Agcr, <sup>a</sup> Mesa, <sup>a</sup> Orhy, <sup>a</sup> Sihy	--	--	--	70	(Mesa 60)-	--	--	+	+	2	+	S+		
		H-4 69-80		<sup>a</sup> Agcr, <sup>a</sup> Mesa, <sup>a</sup> Cemo2, <sup>a</sup> Amut	--	--	--	50-60	--	--	66-67	--	+	+	2	+	S+	
		H-5 69-80		<sup>a</sup> Agcr, <sup>a</sup> Mesa, <sup>a</sup> Agin2, <sup>a</sup> Orhy	--	--	--	79-74	35	42	--	+	+	3	+	U+		
Wolverton		H-6 68-80		<sup>a</sup> Agcr, <sup>a</sup> Mesa, <sup>a</sup> Sihy, <sup>a</sup> Arf12	--	--	--	27-50	68-83	--	14-26	--	+	+	2	+	S+	
		H-7 68-80		<sup>a</sup> Agcr, <sup>a</sup> Arf12, <sup>a</sup> Arf12, <sup>a</sup> Ararn, <sup>a</sup> Poa	--	--	--	30-71	--	--	30-46	--	+	+	3	+	S+	
		H-8 68-80		<sup>a</sup> Stle, <sup>a</sup> Cemo2, <sup>a</sup> Comes	--	--	--	50-71	--	--	18	32-40	+	+	3	+	S+	
		H-9 68-80		<sup>a</sup> Agcr, <sup>a</sup> Mesa, <sup>a</sup> Putr2, <sup>a</sup> Atca2, <sup>a</sup> Comes	--	--	--	--	--	--	78-84-74	+	+	4	+	S+		
Bulldog		B-6 70-80		<sup>a</sup> Orhy, <sup>a</sup> Spai, <sup>a</sup> Ararn, <sup>a</sup> Arf12	--	--	--	41-86	--	60	+	+	4	+	U+			
		B-7 68-80		<sup>a</sup> Orhy, <sup>a</sup> Spai, <sup>a</sup> Ararn, <sup>a</sup> Arf12	--	--	--	30-60	--	16-34	30-53	+	+	4	+	U+		
		B-8 68-80		<sup>a</sup> Orhy, <sup>a</sup> Spai, <sup>a</sup> Ararn, <sup>a</sup> Arf12	--	--	--	44-64	--	--	10-46	+	+	3	+	S+		
		B-9 68-80		<sup>a</sup> Orhy, <sup>a</sup> Spai, <sup>a</sup> Ararn, <sup>a</sup> Arf12	--	--	--	--	--	--	36-54	+	+	4	+	S+		
0109 Pernel		H-1 69-80		<sup>a</sup> Agcr, <sup>a</sup> Mesa, <sup>a</sup> Orhy, <sup>a</sup> Sihy	--	--	--	41-86	--	60	+	+	4	+	U+			
		H-2 69-80		<sup>a</sup> Agcr, <sup>a</sup> Mesa, <sup>a</sup> Orhy, <sup>a</sup> Sihy	--	--	--	41-86	--	60	+	+	4	+	U+			
		H-4 69-80		<sup>a</sup> Agcr, <sup>a</sup> Mesa, <sup>a</sup> Cemo2, <sup>a</sup> Amut	--	--	--	41-86	--	60	+	+	4	+	U+			
		H-5 69-80		<sup>a</sup> Agcr, <sup>a</sup> Mesa, <sup>a</sup> Agin2, <sup>a</sup> Orhy	--	--	--	41-86	--	60	+	+	4	+	U+			



# APPENDIX 3

Code No.	Allotment	Pasture and Plot No.	Years of Records	Index <sup>a</sup> or Key Species	Percent Utilization									Trend of Key <sup>c</sup>				Apparent Condition and Trend <sup>c</sup>			
					Browse <sup>b</sup>			Grass <sup>b</sup>			Browse	Seedling	Cool	Warm	Photo Trend	Condition <sup>d</sup>	Index 1977 <sup>e</sup>	Longtime Estimate			
					1	2	3	1	2	3											
0901 Robbers Roost			RR-1a 69-79	<sup>a</sup> Orhy, <sup>a</sup> Hija, <sup>a</sup> Epvi, <sup>a</sup> Bogr, <sup>a</sup> Spcr, <sup>a</sup> Gusa2	--	--	--	L-M	--	M-H	+	+	+	+	+	3	+	S+			
			RR-1b 69-79	<sup>a</sup> Orhy, <sup>a</sup> Hija, <sup>a</sup> Epvi, <sup>a</sup> Bogr, <sup>a</sup> Spcr, <sup>a</sup> Gusa2	--	--	--	L-M	--	M-H	+	+	+	+	+	3	+	S+			
			RR-2a 69-79	<sup>a</sup> Orhy, <sup>a</sup> Hija, <sup>a</sup> Cora	--	--	--	L	--	--	+	+	+	+	+	3	+	S+			
			RR-2b 69-79	<sup>a</sup> Orhy, <sup>a</sup> Hija, <sup>a</sup> Cora	--	--	--	L	--	--	+	+	+	+	+	3	+	S+			
			RR-3a 69-79	<sup>a</sup> Orhy, <sup>a</sup> Hija, <sup>a</sup> Spcr, <sup>a</sup> Gusa2	--	--	--	H	--	21	+	+	+	+	+	4	+	S+			
			RR-3b 69-79	<sup>a</sup> Orhy, <sup>a</sup> Hija, <sup>a</sup> Spcr, <sup>a</sup> Gusa2	--	--	--	H	--	21	+	+	+	+	+	3	+	S+			
0110 Rockies	Starr	RR-4a 69-79	<sup>a</sup> Epvi, <sup>a</sup> Bogr	--	--	--	--	--	--	--	+	+	+	+	+	4	+	S+			
		RR-4b 69-79	<sup>a</sup> Epvi, <sup>a</sup> Bogr	--	--	--	--	--	--	0	+	+	+	+	3	+	S+				
		S-1 68-80	<sup>a</sup> Hija, <sup>a</sup> Orhy, <sup>a</sup> Spcr, <sup>a</sup> Atca2, <sup>a</sup> Hija, <sup>a</sup> Artr2, <sup>a</sup> Bte, <sup>a</sup> Spcr	--	--	--	84-65	--	--	+	+	+	+	+	2	+	U+				
		S-2 68-80	<sup>a</sup> Hija, <sup>a</sup> Orhy, <sup>a</sup> Spcr, <sup>a</sup> Atca2, <sup>a</sup> Hija, <sup>a</sup> Artr2, <sup>a</sup> Bte, <sup>a</sup> Spcr	--	--	--	50-43	--	--	+	+	+	+	+	3	+	U+				
		S-6 68-80	<sup>a</sup> Orhy, <sup>a</sup> Hija, <sup>a</sup> Cora	--	--	--	66-68	--	--	+	+	+	+	+	3	+	U+				
		S-7 68-80	<sup>a</sup> Orhy, <sup>a</sup> Hija, <sup>a</sup> Atca2, <sup>a</sup> Cora, <sup>a</sup> Spcr, <sup>a</sup> Gusa2, <sup>a</sup> Bte, <sup>a</sup> Atca2	60-85	--	--	50-41	--	--	+	+	+	+	+	3	+	S+				
0111 Sandy 1	Sand	S-8 68-80	<sup>a</sup> Hija, <sup>a</sup> Bte, <sup>a</sup> Gusa2, <sup>a</sup> Artr2	--	--	--	25-64	--	--	+	+	+	+	+	3	+	S+				
		Sd-1 68-80	<sup>a</sup> Orhy, <sup>a</sup> Epheo, <sup>a</sup> Sporo, <sup>a</sup> Hija	--	--	--	90-63	--	--	+	+	+	+	+	3	+	U+				
		Sd-2 68-80	<sup>a</sup> Orhy, <sup>a</sup> Hija, <sup>a</sup> Cora, <sup>a</sup> Gusa2, <sup>a</sup> Spcr	--	--	--	49-54	--	--	+	+	+	+	+	3	+	U+				
		Sd-8 68-80	<sup>a</sup> Hija, <sup>a</sup> Atco, <sup>a</sup> Bte, <sup>a</sup> Astra, <sup>a</sup> Cora	41	--	--	63-67	--	--	+	+	+	+	+	3	+	U+				
		Sd-9 68-80	<sup>a</sup> Hija, <sup>a</sup> Orhy, <sup>a</sup> Cora	--	--	--	31	--	--	+	+	+	+	+	3	+	U+				
		S-1 67-80	<sup>a</sup> Hija, <sup>a</sup> Orhy, <sup>a</sup> Epto, <sup>a</sup> Atca2	58	--	--	58	33	--	51	+	+	+	+	3	+	U+				
0112 Sandy 2	Option	S-2 67-80	<sup>a</sup> Hija, <sup>a</sup> Orhy, <sup>a</sup> Atca2, <sup>a</sup> Spcr	70	--	--	10-85	--	--	+	+	+	+	+	3	+	U+				
		S-3 67-80	<sup>a</sup> Hija, <sup>a</sup> Orhy, <sup>a</sup> Atrip, <sup>a</sup> Spcr, <sup>a</sup> Gusa2	71	--	--	60-90	--	--	+	+	+	+	+	3	+	U+				
		S-4 67-80	<sup>a</sup> Hija, <sup>a</sup> Orhy, <sup>a</sup> Spcr, <sup>a</sup> Atrip	--	--	--	71	--	--	+	+	+	+	+	3	+	U+				
				--	--	--	0-84	--	--	+	+	+	+	+	3	+	U+				
				--	--	--	50	--	--	+	+	+	+	+	3	+	U+				
				45	--	--	62-66	53	--	33	66	+	+	+	2	+	U+				
0113 Sandy 3		0-1 67-80	<sup>a</sup> Orhy, <sup>a</sup> Spcr, <sup>a</sup> Hija, <sup>a</sup> Atrip, <sup>a</sup> Atca2, <sup>a</sup> Epheo	45	--	--	62-66	53	--	33	66	+	+	+	2	+	U+				
		0-2 67-80	<sup>a</sup> Hija, <sup>a</sup> Orhy, <sup>a</sup> Atnu2, <sup>a</sup> Atca2, <sup>a</sup> Spcr	56	--	--	63	65	--	10	+	+	+	+	3	+	U+				
		0-3 67-80	<sup>a</sup> Hija, <sup>a</sup> Atco, <sup>a</sup> Orhy, <sup>a</sup> Spcr, <sup>a</sup> Atca2, <sup>a</sup> Epheo	70	70	57	64	--	67	+	+	+	+	+	3	+	S+				
		0-4 67-80	<sup>a</sup> Orhy, <sup>a</sup> Atco, <sup>a</sup> Gusa2	--	--	--	62	--	--	+	+	+	+	+	3	+	--				
		0-5 67-80	<sup>a</sup> Hija, <sup>a</sup> Orhy, <sup>a</sup> Atco, <sup>a</sup> Atnu2, <sup>a</sup> Spcr, <sup>a</sup> Atca2	65-72	--	--	69	--	--	+	+	+	+	+	2	+	--				
		T-3 67-80	<sup>a</sup> Agcr, <sup>a</sup> Epheo, <sup>a</sup> Artr, <sup>a</sup> Atca2, <sup>a</sup> Orhy, <sup>a</sup> Spcr, <sup>a</sup> Hija	70	--	--	66-84	--	--	+	+	+	+	+	4	+	S+				
0114 Sawmill Basin	Ellen Creek Bull	T-4 67-80	<sup>a</sup> Spcr, <sup>a</sup> Hija, <sup>a</sup> Atco, <sup>a</sup> Orhy, <sup>a</sup> Epheo	--	--	--	62-67	--	--	+	+	+	+	+	2	+	S+				
		SW-6 67-80	<sup>a</sup> Orhy, <sup>a</sup> Hija, <sup>a</sup> Atca2, <sup>a</sup> Spcr	--	--	--	74-84	--	--	+	+	+	+	+	3	+	U+				
		S-1 67-80	<sup>a</sup> Hija, <sup>a</sup> Orhy, <sup>a</sup> Atca2, <sup>a</sup> Gusa2, <sup>a</sup> Spcr	--	--	--	75-59	--	--	+	+	+	+	+	3	+	U+				
		S-2 67-80	<sup>a</sup> Spcr, <sup>a</sup> Orhy, <sup>a</sup> Atca2, <sup>a</sup> Hija, <sup>a</sup> Gusa2	--	--	--	54	--	--	+	+	+	+	+	3	+	U+				
		S-3 67-80	<sup>a</sup> Orhy, <sup>a</sup> Hija, <sup>a</sup> Atca2, <sup>a</sup> Spcr	--	--	--	59-54	--	--	+	+	+	+	+	3	+	S+				
		S-4 67-80	<sup>a</sup> Orhy, <sup>a</sup> Hija, <sup>a</sup> Atca2, <sup>a</sup> Spcr	--	--	--	59-54	--	--	+	+	+	+	+	3	+	S+				



Code No.	Allotment	Pasture and Plot No.	Years of Records	Index <sup>a</sup> or Key Species	Percent Utilization									Trend of Key <sup>c</sup>				Apparent Condition and Trend <sup>c</sup>			
					Browse <sup>b</sup>			Grass <sup>b</sup>			Browse	Seedling	Cool	Grass	Warm	Photo Trend	Condition <sup>d</sup>	Index	1977 <sup>e</sup>	Longtime Estimate	
					1	2	3	1	2	3											
0115 Steele Butte		Stevens	S-1 67-80	<sup>a</sup> Orhy, <sup>a</sup> Atco	--	--	--	70-83	--	--	--	†	†	--	†	3	†	U+	†		
			S-2 67-80	<sup>a</sup> Hija, <sup>a</sup> Atco	--	--	--	70	--	--	--	--	--	--	--	†	3	†	U+	†	
			S-3 67-80	<sup>a</sup> Orhy, <sup>a</sup> Atco	--	--	--	21	--	--	--	--	--	--	--	†	3	†	S+	†	
			S-4 67-80	<sup>a</sup> Hija, <sup>a</sup> Atca2	--	--	--	57-79	--	--	--	--	--	--	--	†	3	†	S+	†	
					--	--	--	64	--	--	--	--	--	--	--	†	3	†	S+	†	
		S-5 67-80	<sup>a</sup> Orhy, <sup>a</sup> Atca2	--	--	--	42-67	--	--	--	--	--	--	--	†	3	†	S+	†		
		S-6 67-80	<sup>a</sup> Hija, <sup>a</sup> Atca2, <sup>a</sup> Orhy, <sup>a</sup> Spca	47-63	--	--	67 56	--	--	--	--	--	--	--	†	3	†	S+	†		
		S-7 67-80	<sup>a</sup> Orhy, <sup>a</sup> Hija, <sup>a</sup> Atco, <sup>a</sup> Atca2, <sup>a</sup> Spca	26-63	--	--	10 67 56	--	--	10 15	--	--	--	--	†	2	†	S+	†		
		Spring	L1-1 67-80	<sup>a</sup> Orhy, <sup>a</sup> Atca2, <sup>a</sup> Hija	--	--	--	41-63	--	--	--	--	--	--	--	†	3	†	S+	†	
			T-1 67-80	<sup>a</sup> Agcr, <sup>a</sup> Orhy, <sup>a</sup> Ephed	--	--	--	37-88	--	--	20	--	--	--	--	†	2	†	S+	†	
T-2 67-80	<sup>a</sup> Agcr, <sup>a</sup> Orhy, <sup>a</sup> Ephed		--	--	--	37-88	--	--	--	--	--	--	--	†	3	†	S+	†			
C-3 67-80	<sup>a</sup> Hija, <sup>a</sup> Atca2		--	70	--	--	70	--	--	--	--	--	--	†	3	†	U+	†			
C-4 73-75	<sup>a</sup> Hija, <sup>a</sup> Orhy, <sup>a</sup> Agcr (Location of plot is lost, photo plot only).		--	--	37	--	--	--	--	--	--	--	--	†	4	†	U+	†			
0117 Waterpocket	Thompson	T-1 68-79	<sup>a</sup> Hija, <sup>a</sup> Feov, <sup>a</sup> Spca, <sup>a</sup> Atca2, <sup>a</sup> Gusa2	--	--	--	47	--	--	--	--	--	--	†	4	†	S+	†			
		T-2 68-79	<sup>a</sup> Feov, <sup>a</sup> Spca, <sup>a</sup> Atco, <sup>a</sup> Arlo, <sup>a</sup> Epne, <sup>a</sup> Orhy, <sup>a</sup> Atco, <sup>a</sup> Hija	80	--	--	60	--	--	--	--	--	--	--	†	4	†	U+	†		
		T-3 68-79	<sup>a</sup> Feov, <sup>a</sup> Spca, <sup>a</sup> Hija, <sup>a</sup> Atca2, <sup>a</sup> Atco, <sup>a</sup> Gusa2, <sup>a</sup> Cgra, <sup>a</sup> Atca2	80	--	--	35-64 48-68	--	--	--	--	--	--	--	†	3	†	S+	†		
		H-4 68-79	<sup>a</sup> Feov, <sup>a</sup> Spca, <sup>a</sup> Orhy, <sup>a</sup> Hija, <sup>a</sup> Arf2, <sup>a</sup> Atco, <sup>a</sup> Epne	40-70	--	--	46-90	--	--	--	--	--	--	--	†	2	†	U+	†		
				--	--	--	--	--	--	--	--	--	--	--	†	2	†	U+	†		

<sup>a</sup>Included in Index. Other species used as key or indicator species.<sup>a</sup>

<sup>b</sup>1. Prior to 1975  
2. 1975-79  
3. 1979-81

<sup>c</sup>† = up  
+ = not apparent  
↓ = down.

<sup>d</sup>Relative value, range condition based on photo appearance:  
1 = Excellent; 2 = Good; 3 = Fair; 4 = Poor.

<sup>e</sup>From 1977 URA Condition and Trend S = Satisfactory, U = Unsatisfactory.

<sup>f</sup>Plot Destroyed.





## United States Department of the Interior

IN REPLY REFER TO  
1608 HMRA-H  
(U-050)BUREAU OF LAND MANAGEMENT  
RICHFIELD DISTRICT OFFICE  
150 East 900 North  
Richfield, Utah 84701STAFF REPORT

Title: Grazing MFP/EIS, Henry Mountain Planning Area, Solutions to Problems Encountered in Processing Data from the Soil-Vegetation Inventory of 1980

Date: August 6, 1982

Authors: Max Robinson, Jim Buchanan, Jan Knight, Richard Felthousen, and Roger Twitchell

A decision was made by the Richfield District Manager, Donald Pendleton, to use data from the soil-vegetation inventory of the Henry Mountain Planning Area in preparing the planning documents and grazing management EIS. This decision was based on Washington Office Instruction Memorandum No. 82-292, "Final Grazing Management Policy." Time schedules for completing these documents were established on the assumption that all data from the inventory could be processed promptly and accurately by computer programs that were developed, although not fully tested. It was also assumed that other BLM Districts which had previously used the inventory would have already identified problems to the Denver Service Center (DSC) and had corrections implemented. In both cases, however, the assumptions were incorrect and programming problems persisted. As a result, a material deviation request was submitted on June 23, 1982 ("Request for Material Deviation in Final Filing Date for the Henry Mountain Grazing Environmental Impact Statement," 1972 HM 032). The following is a discussion of the events and problems which precipitated the material deviation request and the solutions developed by the Core Team composed of Max Robinson, Jim Buchanan, Jan Knight, Dick Felthousen, and Roger Twitchell:

Because of the complex issues identified with livestock grazing and use of the range by big game animals, a soil-vegetation inventory was made of the grazing lands within the 1,893,272 acres of the Henry Mountain Planning Area. The field work was properly executed and the maps and field data were accurately prepared. It became apparent, however, as the data was processed that major problems existed in the handling of the data within the computer program. It has taken considerable effort on the part of the Richfield District personnel as well as the Utah State Office and DSC to correct the program and complete the analysis of the data. Many hours of overtime, including nights and week-ends, have gone into the calculations in order to make a meaningful analysis of the data.

A major effort was made to complete the planning documents and grazing environmental impact statement (EIS) according to schedule. The final tabulations assigning forage use to the various kinds of animals (livestock, bison, deer, antelope, bighorn and wild burros) under the five management alternatives showed values inconsistent with other records and on-the-ground studies. In



### APPENDIX 3

general, there appeared to be forage production in excess of what livestock use records and ongoing trend and utilization studies indicated was available on the ground. This occurred despite the fact that care was exercised in assigning conservative proper use factors to low-value, super-abundant forage species. Time was needed to more clearly identify the problems and to make corrections in the data and in data processing.

This staff report documents the reasons for the request, identifies the problems encountered in processing the soil-vegetation inventory data, and outlines the procedures being followed and progress being made in processing this data.

The five main problem areas encountered were:

- A. Accounting for suitability of areas for grazing
- B. Height code corrections
- C. Application of proper use factors (PUFs) without fully accounting for animal diets
- D. A computer program that appeared to be erratic in assignments of forage among competing animals
- E. Computer downtime and slowdowns in data processing.

A. Initial design specifications for the soil-vegetation inventory automatic data processing (ADP) system computed grazing capacity by a weighted average of all strata in a site-writeup area (SWA), including barren and non-range strata. This allowed for gross suitability determinations only, introducing errors into the distribution of forage for grazing animals. The overall effect was to lower total grazing capacity by increasing the area that would be determined as unsuitable for livestock and bison. Areas that were known to be suitable would, through the weighting process, be designated as unsuitable. To correct this problem, lengthy hand calculations of stratum grazing capacities for all animals in all allotments, and a great deal of time editing the subsequent suitability changes into the allocation program were required of District personnel to circumvent the existing processing method. These calculations are included in the soil-vegetation inventory allotment files.

B. The inventory classified vegetation into four layers which were identified by height codes:

<u>Code No.</u>	<u>Feet</u>
1	0 - 3
2	3 - 4½
3	4½ - 7
4	7 and above

The availability of forage for each kind of animal was to be based on assigned height codes. The original computer program did not have the capacity to handle the several combinations involved. When initially applied, height codes considered for forage species were selected erratically. The DSC ADP staff attempted to correct this problem by programming the total plant community (all four height codes) to be analyzed as forage. This neglected acknowledged grazing heights of foraging animals. As a result, excess amounts of trees and shrubs were considered forage and calculated into grazing capacity. The District staff edited the program to compute forage to 4½' for all grazing animals.



### APPENDIX 3

C. Adjustments had to be made for errors that resulted from assigning normal proper use factors (PUFs) to super-abundant, relatively low-value forage species. PUFs assigned to such species as sagebrush, oakbrush, pinyon and juniper were too high, and when applied over a wide area resulted in grazing capacity estimates in excess of what was reasonable. This was particularly true for big game species. Even though corrections were made in the PUFs, it was not until all forage distribution runs were completed that the extent of the errors was fully understood. It was evident that a more complete, accurate, and rapid means for evaluating animal diets and adjusting PUFs was needed. With the help of Lynn Fikstad, Ed Harne, and Diana Wilcox of the Utah State Office, and Scott McPherson and William West of the DSC, computer programs were developed that made it possible to compute animal diets and plant composition on an allotment basis. Until July 7, 1982 all diet calculations for the various kinds and combinations of animals were done by tedious hand calculations, because adjustment of PUFs was needed to correct these diets.

Following a review of the literature and after consulting with various experts in the field, target diets and acceptable ranges of grass, forbs and shrub species were established for all animals (see Attachment 1 for big game animals and Attachment 2 for livestock). Acceptable levels of super-abundant, relatively low-value forage species in the diets were also established. The basis for establishing these targets and ranges for various forage species was the nutrient requirements of the various kinds of animals as determined from research. Protein needs at various stages of animal development and at different seasons of the year were used as criteria. For example, does nursing fawns require a higher level of protein and a more succulent forb diet than a wintering herd of mature deer or cattle. (Attachment 3 is a list of references used.) Diets for all animals on all allotments were then evaluated in relation to these target diets and modified when necessary. District personnel felt that the impact of grazing on the basic soil and vegetation resource that could result from assigning improper amounts of forage to animal use, either livestock or big game, was of even greater concern.

D. What appeared to be erratic behavior of the computer program in assigning forage to the various kinds of animal uses was resolved by making a more complete and better definition of the relationship showing tradeoffs between competing animals. An example showing tradeoffs between cattle and sheep is attached in the form of a curve (Attachment 4). Like relationships include game animals. A relationship involving several competing animals cannot be plotted as a simple curve; however, it can be shown in tabular form.

To refine relationships, PUFs and AUFs on an allotment basis, rather than key area bases, were adjusted (based on diets as previously described); allowable use factors (AUFs) were lowered on major forage species; and a larger number of intermediate points were identified and, for illustration and a better understanding of the relationship, plotted. This shows various possible stocking combinations for the several competing animals.

E. Computer downtime and slowdowns in data processing have been major factors in the length of time needed to complete the recommendations for range forage use. Daytime use of the computer was extremely slow and interference on the lines caused lost data and frustration with the program. It was necessary for Richfield District personnel involved in the data processing effort to work the computer before 8:00 a.m. and after 5:00 p.m. on weekdays and on



### APPENDIX 3

weekends. Use of the time-sharing system during these off hours significantly reduced the processing time. Processing time was greatly reduced, however, after the Utah State Computer Specialist Lynn Fikstad designed a text editor program enabling us to process batch loads without having to sit at the terminal and run each batch through the allocation model. This program has been in use since early July.

On this date, August 12, 1982, the progress has been made on the following five problem areas identified:

1. Corrections have been made for suitability of the range for use by livestock and bison. Limitations of the range as habitat for other big game animals has been recognized, although not fully accounted for.
2. Height code limitations of forage use has been accounted for.
3. PUFs have been adjusted for livestock and big game animals on the basis of diets within each grazing allotment.
4. The computer is now being used effectively to assign forage among competing animals.
5. Advantage is being taken of text edited batch runs and other programs to hasten the data handling process.

Enclosures: 4



# APPENDIX 3

## Attachment 1

### Big Game Target Diets and Acceptable Ranges for Soil-Vegetation Inventory Allocation Process

Deer:	Species	Season	
		Summer	Winter
	Browse	65 (60-70)	85 (80-90)
	Forbs	25 (20-30)	10 (5-15)
	Grass	10 (5-15)	5 (0-10)

Bison:	<u>Species</u>	<u>Summer</u>	<u>Winter</u>	<u>Yearlong</u>
	Browse	0 (0-5)	10 (0-10)	5 (0-5)
	Forbs	5 (0-10)	15 (10-20)	15 (10-20)
	Grass	95 (85-100)	75 (70-80)	80 (75-85)

Antelope:	<u>Species</u>	<u>Yearlong</u>
	Browse	65 (60-70)
	Forbs	30 (25-35)
	Grass	5 (0-10)

Bighorn Sheep:	<u>Species</u>	<u>Yearlong</u>
	Browse	40 (35-45)
	Forbs	20 (15-25)
	Grass	40 (35-45)



# APPENDIX 3

## Attachment 2

### Target Diets and Acceptable Ranges for Livestock

#### Sheep

#### Winter

Grass	35	(25-40)
Forbs	10	(2-10+)
Shrubs	55	(40-60)

#### Sheep

#### Winter

Grass	35	(20-40)
Forbs	35	(10-40+)
Shrubs	30	(25-40)

#### Cattle

#### Winter (Fall, Winter Spring)

Grass	75	40-80
Forbs	5	2-10+
Shrubs	20	15-40

#### Cattle

#### Summer

Grass	85	60-90
Forbs	5	2-10+
Shrubs	10	10-30



Attachment 3

REFERENCES

Livestock and Big Game Food Habit Studies

- Austin, D.D. and P.J. Urness. 1982. Summer Use of Bitterbrush Rangelands by Mule Deer. A Contribution of Utah Division of Wildlife Resources, Federal Aid Project W-105-R (unpublished paper) June 15, 1982.
- Bowns, James and Don D. Dwyer. 1982. Response of Livestock and Vegetation Under Various Grazing Systems on Forested Rangelands (Personal Communication). Utah State University, Logan, Utah. Range Research. July 13, 1982.
- Cook, C. Wayne and Lorin E. Harris. 1977. Nutritive Value of Seasonal Ranges. Utah Agricultural Experiment Station Bulletin 472. Reprinted March 1977.
- Cook, C. Wayne, L. A. Stoddart and Lorin E. Harris. 1954. The Nutritive Value of Winter Range Plants in the Great Basin. Utah Agricultural Experiment Station Bulletin 372.
- Hanley, Thomas A. and Kathleen A. Hanley. 1982. Food Resources Partitioning by Sympatric Ungulates on Great Basin Rangeland. Journal of Range Management 35(1) 152-158. Denver, Colorado.
- Heady, Harold F. 1975. Rangeland Management. McGraw-Hill Book Company. New York, New York.
- Herbel, C. H. and A. B. Nelson. 1966. Species Preferences of Hereford and Santa Gertrudis Cattle on Southern New Mexico Range. Journal of Range Management. (19) 177-81. Denver, Colorado.
- Holechek, Jerry L., Martin Vavra and Rex D. Pieper. 1982. Botanical Composition Determination of Range Herbivore Diets: A Review. Journal of Range Management. 35(3) 309-315. Denver, Colorado.
- Holechek, Jerry L., Martin Vavra, Jon Skovlin and William C. Krueger. 1982. Cattle Diets in the Blue Mountains of Oregon, I. Grasslands. Journal of Range Management. 35(1) 109-112. Denver, Colorado.
- Holechek, Jerry L. Martin Vavra, Jon Skovlin, and William C. Kruger. 1982. Cattle Diets in the Blue Mountains of Oregon II Forests. Journal of Range Management. 35(2) 239-242. Denver, Colorado.
- Hutchings, Selar S. and George Stewart. 1953. Increasing Forage Yields and Sheep Production on Intermountain Winter Ranges. U.S. Department of Agriculture Circular 925.
- Julander, O. 1955. Deer and Cattle Range Relations in Utah. Forest Science, 1,130-9.



### APPENDIX 3

#### References (continued)

- Kantz, J. Edward and George M. Van Dyne. 1978. Comparative Analysis of Diets of Bison, Cattle, Sheep and Pronghorn Antelope on Shortgrass Prairie in Northeastern Colorado, U.S.A. Proceedings of International Rangeland Congress. 1:438-43.
- Robinette, W. L., N. V. Hancock, and D. A. Jones. 1977. The Oak Creek Mule Deer Herd in Utah. Utah Wildlife Resources Publication No. 77-15. 148 pp.
- Smith, A. D. 1950. Sagebrush as a Winter Feed for Deer. Journal of Wildlife Management. Vol 14(3) 285-289. Salt Lake City, Utah.
- Smith, A.D. 1953. Consumption of Native Species by Captive Mule Deer During Summer. Journal of Range Management. 6:30-37. Denver, Colorado.
- Smith, A.D. 1950. Sagebrush as a Winter Feed for Deer. Journal of Wildlife Management. Smith, A.D. and D.D. Doell. 1968. Guidelines to Allocating Forage Between Cattle and Big Game Winter Ranges. Utah Division of Wildlife Resources Publication No. 68-11. Salt Lake City, Utah. 32 pp.
- Stoddart, L.A., A. D. Smith, and T. W. Box, 1975. Range Management. McGraw-Hill Book Company. New York, New York. 522 pp.
- Willms, W., A. McLean, R. Tucker and R. Ritc y. 1980. Deer and Cattle Diets on Summer Range in British Columbia. Journal of Range Management. 33(1) 55-59. Denver, Colorado.
- Willms, W., A. McLean, R. Tucker and R. Ritcey. 1979. Interactions Between Mule Deer and Cattle on Big Sagebrush Range in British Columbia. Journal of Range Management. 32(4) 299-302. Denver, Colorado.

#### Antelope Food Habit Studies

- Beale, D.M. and A.D. Smith. 1970. Forage Use, Water Consumption, and Productivity of Pronghorn Antelope in Western Utah. Journal of Wildlife Management. 34(3):570-582. Salt Lake City, Utah.
- Ferrel, C.M. and H.R. Leach. 1952. The Pronghorn Antelope of California with Special Reference to Food Habits. California Fish and Game 38(3):285-93.
- Mason, E. 1952. Food Habits and Measurements of Hart. Mountain Antelope. Journal of Wildlife Management. 16(3):387-389. Salt Lake City, Utah.
- Yoakum, J. 1958. Seasonal Food Habits of the Oregon Pronghorn. Interstate Antelope Conference. Trans. 10:58-72.

#### Mule Deer Food Habit Studies

- Goodwin, G.A., 1975. Seasonal Food Habits of Mule Deer in Southeastern Wyoming. Rocky Mountain Forest and Range Experiment Station. U.S. Department of Agriculture, Forest Service Research Note RM-287.



### APPENDIX 3

#### References (concluded)

- Kufeld, R.C., O.C. Wallmo and C. Feddema. 1973. Foods of The Rocky Mountain Mule Deer. U.S. Department of Agriculture, Forest Service Research Paper RM-111. 31 pp.
- Trout, L.E., and J.L. Thiessen. 1968. Food Habits and Condition of Mule Deer in Ouryhee County. Western Association, State Game and Fish Commission Proceedure 48:188-200.

#### Desert Bighorn Sheep

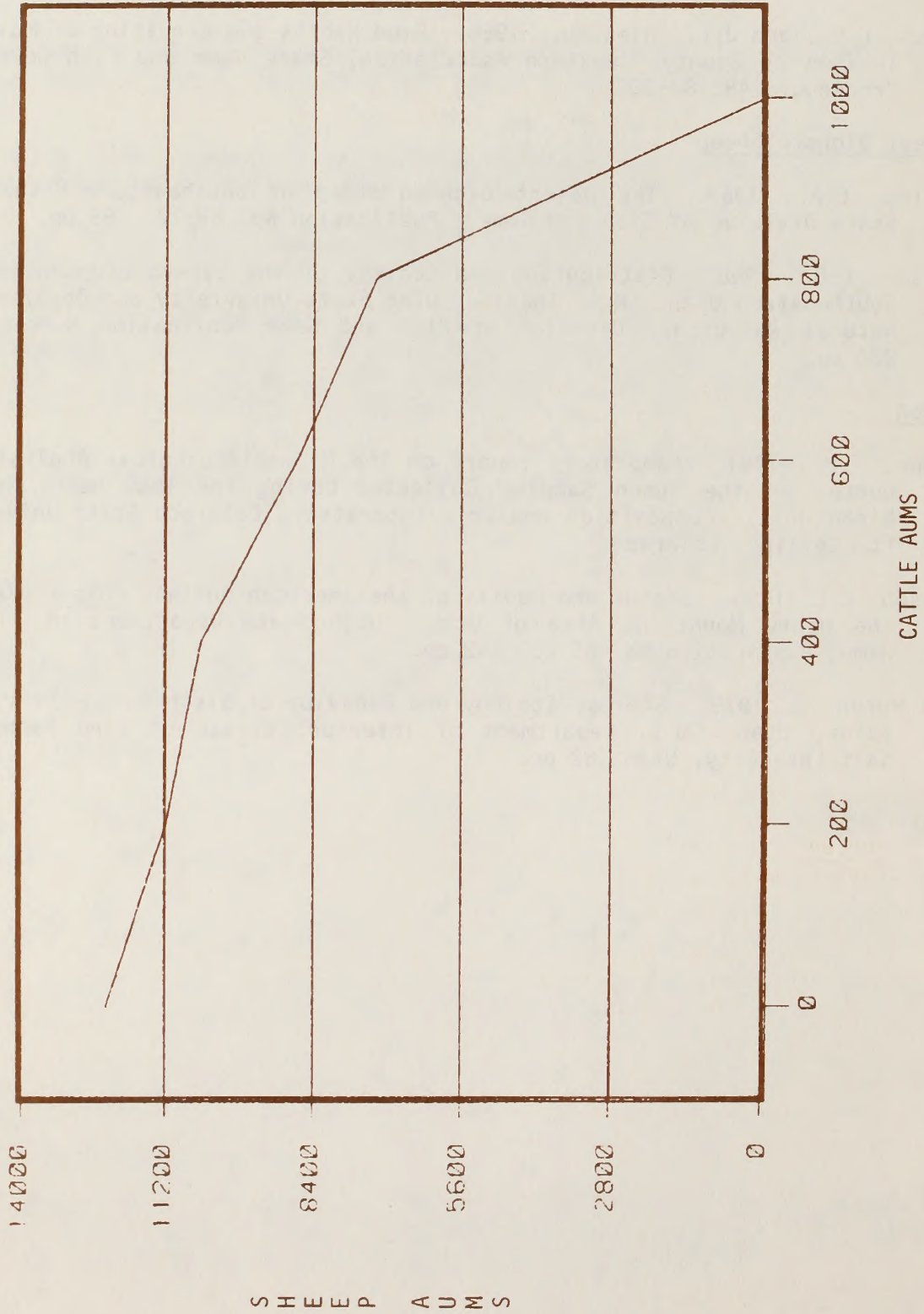
- Irvine, C.A., 1969. The Desert Bighorn Sheep of Southeastern Utah. Utah State Division of Fish and Game. Publication No. 69-12. 99 pp.
- Wilson, L.O., 1968. Distribution and Ccology of the Desert Bighorn Sheep in Southeastern Utah. M.S. Thesis. Utah State University and Department of Natural Resources, Division of Fish and Game Publication Number 68-5. 220 pp.

#### Bison

- Foppe, T.M., 1981. Laboratory report on the Microbistological Analysis Conducted on the Rumen Samples Collected During the 1980 Henry Mountain Bison Hunt. Composition Analysis Laboratory, Colorado State University, Ft. Collins, Colorado.
- Nelson, K.L. 1965. Status and Habits of the American Buffalo (Bison bison) in the Henry Mountains Area of Utah. Utah State Department of Fish and Game, Publication No. 65-2. 142 pp.
- Van Vuren, D. 1979. Status, Ecology and Behavior of Bison in the Henry Mountains, Utah. U.S. Department of Interior, Bureau of Land Management, Salt Lake City, Utah 82 pp.



AN EXAMPLE OF HANKSVILLE ALLOTMENT CATTLE/SHEEP TRADEOFF







# United States Department of the Interior

BUREAU OF LAND MANAGEMENT

RICHFIELD DISTRICT OFFICE

150 East 900 North

Richfield, Utah 84701

## STAFF REPORT

Title: Forage Assignments to Livestock and Bison Based on Records of Use with Studies and the Soil-Vegetation Inventory

Date: August 23, 1982

Author: Max E. Robinson

This staff report compares forage assignments made from the soil-vegetation inventory with those made from Actual Use-Study records and documents the procedure used.

An example of forage assignments to livestock and bison on the Nasty Flat Allotment is attached to compare two methods for estimating grazing capacities for livestock and bison using range in common. The two methods are:

- a. The Actual Use-Studies Method
- b. The Soil-Vegetation Inventory.

The Actual Use-Studies Method should include reliable data of the following nature:

1. Actual use records
2. Range condition and trend studies
3. Forage utilization records
4. Climatic records

Formula from BLM Manual 4413.3

$$\frac{\text{Average Percent Utilized}}{\text{Desired Utilization}} = \frac{\text{Average AUMs Use}}{\text{AUMs (to obtain desired use)}}$$

For the example given (Nasty Flat) and for the Henry Mountain Planning Area as a whole, actual use records are incomplete. Average licensed use for livestock was used, as was estimated use by bison and other big game animals. It should be pointed out that average licensed use was merely an average. One year's use could have been maximum, then the next year's use zero. The problem then became one of correlating actual use with study data. Range condition was based on the ecological concept and was obtained from the soil-vegetation inventory.

Forage utilization studies were available for most of the allotments. However, many allotments had utilization studies for only 1 year, while others had no data at all. Where data was collected, often only a portion of the key areas within an allotment had been monitored. The utilization studies that had been completed had not been well coordinated with actual use.



### APPENDIX 3

Years prior to 1976 were summarized separately and were used as a basis for assessing the degree of use prior to 1976. These values may be compared with averaged licensed use on the assumption that active preference represents actual use. No attempt, however, was made to use this basis for estimating proposed forage assignments for livestock since there is no assurance that active preference and actual use were the same.

Average use for each allotment since 1976 represents the mean of all key areas monitored for the years between 1976 and 1981. For Nasty Flat, this represented the mean of 1 year (1980) in which all key areas had been read. This 1 year may not be representative. Prior to 1976 some readings were taken over a period of 6 years.

The attached worksheet was prepared for Nasty Flat. Similiar sheets were prepared for all allotments.

Table 3-3 of the EIS summarizes records from all allotments (licensed use, utilization studies, condition and trend) and compares estimated grazing capacities based on use records and studies with those from the soil-vegetation inventory.

It is recommended that soil-vegetation inventory data be used as a basis for recommending proposals of forage assignments to livestock and big game animals. Animal use records and studies may be used as support of the inventory when the quality and quantity of the data are adequate.

Records of animal use and utilization studies are generally inadequate, however. Ecological condition and trend studies are more complete and dependable when assessing impact of past use by livestock and big game.

Enclosures: 1



# APPENDIX 3

## Attachment 1 - Work Sheet

Nasty Flat

Cattle (C) use

Preference: 474 AUMs C, Average licensed use 436 AUMs C, Period of use 6/1 - 9/30

Bison (B) Use	Current	Proposed Management	%
Summer (S)	411	349	60
Yearlong (YL)	274	227	40
	685	576	100

Utilization of key species prior to 1976 - 54%, Since 1976 - 56%.

Based on licensed use of livestock and current bison use the following estimates are made of grazing capacities in AUMs:

$\frac{56^a}{48^b} = \frac{1121}{x}$	$x = 961$	Cattle licensed use	AUMs 436
		Bison current use	685
		Total	1121

$$\frac{1121 - 961}{1121} = 14.3\% \text{ total reduction}$$

Total Use 1121 x .143 = 160 AUMs reduction in total use.

Management goals for bison in AUMs:

Current 685 - Proposed 576 = 109 AUMs reduction to be made for bison.  
Therefore,  
Total 160 - 109 = 51 AUMs reduction for cattle.

This represents a  $\frac{51}{436} = 11.7\%$  approx. reduction for cattle

Proposed forage use for cattle based on:

Use records and studies	436 - 51 =	385	AUMs
Based on the soils-vegetation inventory		399	AUMs

This range was classified as being in the following ecological condition:

Late	Mid	Early
16%	77%	7%

Of the eight study plots located in key areas, 7 percent are improving, 33 percent are stable, and 50 percent are declining.

Records of past use and other studies show there are serious problems in distribution of use.

<sup>a</sup>Average Utilization (%), key species past 5 years.

<sup>b</sup>Proper utilization is based on a weighted average utilization of 48 percent of key species at the end of the grazing period 6/1 - 9/30 (Spring 0.67 mo., Summer 3 mo., Fall 0.33 mo. = 4 mo).



### APPENDIX 3

Records from the late 1950s and early 1960s indicate that range conditions during that period have been very poor and heavily used by cattle and sheep. Bison and deer use was reported to be heavy also. It is difficult to quantify these records.

It is recommended that proposed forage use by cattle follow the soil-vegetation inventory with 399 AUMs (400 AUMs).

This should be followed by close monitoring of cattle numbers and use, and use by big game animals, particularly bison. The proposal should be adjusted based on the results of these studies.

Every attempt should be made to insure proper distribution of use.



# APPENDIX 4 RANCH BUDGETS

TABLE 1

Small Cattle Ranch Base Situation

Receipts	Quantity	Unit	Average Weight	Price/Cwt <sup>a</sup>	Total Value
Yearling Steers	34	Head	575	\$84.65	\$16,569
Yearling Heifers	22	Head	525	74.62	8,619
Cull Cows	10	Head	950	45.38	4,311
Cull Bulls	1	Head	1,250	59.25	741
Horses	--				
1. Total Receipts					\$30,240
Total Receipts/Head <sup>b</sup>					336.00
<u>Cash Costs</u>			<u>Total Costs</u>		<u>Cost/Head<sup>b</sup></u>
BLM-Desert Permit			\$ 850		\$ 9.44
Forest Permit			731		8.12
Pasture			2,352		26.13
Alfalfa Hay			4,805		53.39
Barley			510		5.67
Bloat Guard			260		2.89
Salt			169		1.88
Custom Hauling			270		3.00
Vet. & Medicine			357		3.97
Mach. Fuel, Lube, & Repair			3,161		35.12
Equipment Lube and Repair			67		0.74
Labor			3,790		42.11
Land Tax			1,680		18.67
Other Tax			549		6.10
Insurance			88		0.98
Interest on Operating Capital			1,472		16.36
2. Total Cash Costs			\$21,111		234.57
<u>Other Costs</u>					
3. Depreciation			\$2,647		29.41
4. Interest on Capital Investment			8,147		90.30
5. Interest on Land Investment			12,445		138.28
6. Total Other Costs (3+4+5)			23,219		257.99
Total All Costs (2+6)			44,330		492.58
7. Net Cash Income (1-2)			9,129		101.43
8. Net Ranch Income (7-3)			6,482		72.02
9. Return to Land Investment (8-4)			-1,645		-18.28
Return to Operator (9-5)			-14,090		-156.56

<sup>a</sup>1981 prices - Utah Crop and Livestock Reporting Service.

<sup>b</sup>Determined by dividing by herd size - 90 head.



# APPENDIX 4 (cont.)

TABLE 2

## Medium Cattle Ranch Base Situation

Receipts	Quantity	Unit	Average Weight	Price/Cwt <sup>a</sup>	Total Value
Yearling Steers	56	Head	575	\$84.75	\$27,290
Yearling Heifers	36	Head	525	74.62	14,103
Cull Cows	16	Head	950	45.38	6,898
Cull Bulls	2	Head	1,250	59.25	1,481
Horses	1	Head		1,000.00	1,000
1. Total Receipts					\$50,772
Total Receipts/Head <sup>b</sup>					317.33
<u>Cash Costs</u>			<u>Total Costs</u>		<u>Cost/Head<sup>b</sup></u>
BLM-Desert Permit			\$1,958		\$12.24
Forest Permit			1,283		8.02
Pasture			3,456		21.60
Alfalfa Hay			7,207		45.04
Barley			840		5.25
Protein Block			2,835		17.72
Salt			298		1.86
Bloat Guard			428		2.68
Vet. & Medicine			630		3.94
Custom Hauling			450		2.81
Mach. Fuel, Lube, & Repair			6,473		40.46
Equipment Lube and Repair			75		0.47
Labor			5,745		35.90
Land Tax			2,143		13.39
Other Tax			938		5.86
Insurance			138		0.86
Interest on Operating Capital			2,573		16.08
2. Total Cast Costs			\$37,470		234.19
<u>Other Costs</u>					
3. Depreciation			\$4,613		28.83
4. Interest on Capital Investment			14,155		88.47
5. Interest on Land Investment			15,936		99.60
6. Total Other Costs (3+4+5)			34,704		216.90
Total All Costs (2+6)			72,174		451.09
7. Net Cash Income (1-2)			13,302		83.14
8. Net Ranch Income (7-3)			8,689		54.31
9. Return to Land Investment (8-4)			-5,466		-34.16
Return to Operator (9-5)			-21,402		-133.76

<sup>a</sup>1981 prices - Utah Crop and Livestock Reporting Service.

<sup>b</sup>Determined by dividing by herd size - 160 head.



# APPENDIX 4 (cont.)

TABLE 3

## Large Cattle Ranch Base Situation

Receipts	Quantity	Unit	Average Weight	Price/Cwt <sup>a</sup>	Total Value
Yearling Steers	151	Head	600	\$84.75	\$76,784
Yearling Heifers	95	Head	550	74.62	38,989
Cull Cows	45	Head	950	45.38	19,400
Cull Bulls	6	Head	1,250	59.25	4,444
Horses	2	Head		1,000.00	2,000
1. Total Receipts					\$141,616
Total Receipts/Head <sup>b</sup>					329.34
<u>Cash Costs</u>			<u>Total Costs</u>		<u>Cost/Head<sup>b</sup></u>
BLM-Desert Permit			\$4,498		\$10.46
Forest Permit			2,972		6.91
Pasture			12,016		27.94
Alfalfa Hay			22,234		51.71
Barley			2,258		5.25
Salt			803		1.87
Protein Block			5,355		12.45
Bloat Guard			1,151		2.68
Vet. & Medicine			1,698		3.95
Custom Hauling			500		1.40
Mach. Fuel, Lube, & Repair			10,841		25.21
Equipment Lube and Repair			116		0.27
Labor			11,654		27.10
Land Tax			5,724		13.31
Other Tax			2,012		4.68
Insurance			243		0.57
Interest on Operating Capital			6,410		14.91
2. Total Cash Costs			\$90,585		210.67
<u>Other Costs</u>					
3. Depreciation			\$8,465		19.69
4. Interest on Capital Investment			34,278		79.72
5. Interest on Land Investment			43,320		100.74
6. Total Other Costs (3+4+5)			86,063		200.15
Total All Costs (2+6)			176,648		410.82
7. Net Cash Income (1-2)			51,031		118.67
8. Net Ranch Income (7-3)			42,566		98.98
9. Return to Land Investment (8-4)			8,288		19.26
Return to Operator (9-5)			-35,032		-81.48

<sup>a</sup>1981 prices - Utah Crop and Livestock Reporting Service.

<sup>b</sup>Determined by dividing by herd size - 430 head.









APPENDIX 5  
DEFINITION OF PROPOSED ACTION AND  
PREFERRED ALTERNATIVES IN THIS FINAL EIS

United States Department of the Interior

BUREAU OF LAND MANAGEMENT  
WASHINGTON, D.C. 20240

IN REPLY REFER TO:

1792 (221)  
4100

September 3, 1982

Instruction Memorandum No. 82-650  
Expires 9/30/83

To: AFO's (except Alaska and ESO)  
From: Director  
Subject: Grazing Environmental Impact Statements (EIS's) and  
Adjustment of Grazing Preferences

Grazing EIS's are publicly perceived as decision documents rather than the instrument of analysis they actually are. To counter that perception, we have decided to alter the approach to identification of the proposed action and alternatives. Field personnel shall comply with the following instructions for preparing grazing EIS's initiated during Fiscal Years (FY's) 1983 and beyond:

1. The proposed action shall be the continuation of the present management situation, based on the permittees' or lessees' active preference, previous year's licensed use, or average actual use. If no actions other than approval of grazing at current levels are proposed, the proposed action would be the No Action alternative.
2. Additional alternatives shall be developed through the Bureau of Land Management's planning system or using any resource data available for the EIS area. One alternative may be developed around how the permittees or lessees would propose the allotments to be managed. The agency's preferred alternative may be the proposed action or any of the other alternatives.
3. The existing computer program at the Denver Service Center may again be used to develop alternatives to the proposed action, and to analyze the impacts of the alternatives and the proposed action.

Effective with EIS's completed in FY 1982, grazing preference adjustments, either upward or downward, following the grazing EIS shall not be based solely on vegetation production surveys, but shall be based on monitoring or a combination of monitoring and range surveys. This does not preclude adjustments by mutual agreements. Adjustments of grazing preference may also be made for other reasons, such as loss of base property or devoting public lands to another public purpose, including disposal.







APPENDIX 6  
AUTHORIZATION FOR USE OF 1978-1980  
SOIL - VEGETATION INVENTORIES



United States Department of the Interior

BUREAU OF LAND MANAGEMENT  
WASHINGTON, D.C. 20240

IN REPLY REFER TO:

1792 (221)  
4160

Instruction Memorandum No. 83-257  
Expires 9/30/84

To: AFO's and WO Division Chiefs

From: Director

Subject: Compliance with Instruction Memorandum (IM) No. 83-155 - Soil  
Vegetation Inventory Method (SVIM) Program and Archiving  
of Data

We have discussed your feedback on specific conflicts of complying with IM No. 83-155. Our decision is to allow the three environmental impact statements (EIS's) (Glenwood Springs, Henry Mountain, and Price River) published in draft to continue to be finalized without further delays and costs associated with complying with IM No. 83-155.

All other EIS's printed after December 2, 1982, must comply with IM No. 83-155.

All statements including those listed above must contain a cautionary statement regarding the utility of vegetation surveys similar to the one stated in IM No. 82-644.

Assistant Director for Renewable Resources







## LIST OF ABBREVIATIONS

ACEC:	Area of Critical Environmental Concern
AMP:	Allotment Management Plan
AUM:	animal unit month
BEA:	Bureau of Economic Analysis
BLM:	Bureau of Land Management
CFR:	Code of Federal Regulations
EA:	environmental assessment
EIS:	environmental impact statement
EPA:	Environmental Protection Agency
F:	Fahrenheit
FLPMA:	Federal Land Policy and Management Act
FS:	Forest Service
FWS:	Fish and Wildlife Service
gal/yr:	gallons per year
HMP:	Habitat Management Plan
IMP:	Interim Management Policy
kg/ha:	kilograms per hectare
lbs.:	pounds
MFP:	Management Framework Plan
ml:	milliliters
NEPA:	National Environmental Policy Act
NOx:	nitrogen oxides
NPS:	National Park Service
NRA:	National Recreation Area
NRDC:	Natural Resources Defense Council
NWPS:	National Wilderness Preservation System
ORV:	off-road vehicle
PAA:	Planning Area Analysis
P.L.:	Public Law
RPS:	Rangeland Program Summary
SCS:	Soil Conservation Service
SO <sub>2</sub> :	sulfur dioxide
SSF:	soil surface factor
TSP:	total suspended particulates
UDWR:	Utah Division of Wildlife Resources
URA:	Unit Resource Analysis
USDA:	United States Department of Agriculture
USDC:	United States Department of Commerce
USDI:	United States Department of Interior
USGS:	United States Geological Survey
VRM:	visual resource management
WSA:	Wilderness Study Area







# GLOSSARY

- ACRE-FOOT** (ac. ft.). A volume of water that covers an area of 1 acre to a depth of 1 foot (43,560 cubic feet).
- ACTIVE PREFERENCE**. The total number of animal unit months of livestock grazing on public lands apportioned and attached to base property owned or controlled by a permittee or lessee that can be licensed. Active preference does not include suspended non-use.
- ACTIVITY RECOMMENDATION** (MFP STEP 1). A quantified statement, based upon an analysis of an activity objective, which clearly defines the specific course of action that will be taken to achieve all or part of the objectives.
- ACTUAL USE**. The use made of forage on any area by livestock and/or big game, usually expressed in animal unit months.
- AERIE**. Raptor nest built on a cliff or other high place.
- ALLOTMENT** (RANGE ALLOTMENT). A management area designated for the use of a prescribed number and kind of livestock under one plan of management. An area where one or more livestock permittees graze their livestock, consisting of public lands and any State and private lands that may be enclosed.
- ALLOTMENT MANAGEMENT PLAN** (AMP). A written program of livestock grazing management including supportive measures, if required. An AMP is designed to attain specific management goals in a grazing allotment and is prepared cooperatively with the permittee(s) or leasee(s).
- ALTERNATIVE**. One of at least two proposed means of accomplishing planning objectives.
- AMBIENT AIR QUALITY**. The quality of an air mass associated within a given environment.
- ANALYSIS**. The examination of existing and/or recommended management needs and their relationships to discover and display the outputs, benefits, effects, and consequences of initiating a proposed action.
- ANIMAL UNIT MONTH** (AUM). The amount of forage required to sustain the equivalent of 1 cow, 1 bison, or 6.2 sheep for 1 month; 5.8 deer for 1 month; 9.6 antelope for 1 month; 5.5 bighorn sheep for 1 month, or 2.2 burros for one month (usually 800 lbs. of useable air-dried forage).
- APPARENT TREND**. An evaluation of the direction of change in rangeland condition based on a one-time observation of the specific area as it relates to livestock and/or big game use.
- AQUATIC**. Living or growing in or on the water.
- AREA OF CRITICAL ENVIRONMENTAL CONCERN** (ACEC). An area of public lands where special management attention is required to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources, or other natural systems or processes, or to protect life/provide safety from natural hazards.
- AVERAGE LICENSED USE**. The average actual use of forage (expressed in AUMs) by livestock on an allotment during several representative years. In this EIS, the period from 1976 to 1982 was used. The years receiving the highest and lowest use were dropped, and the remaining 5 years averaged.
- BASIC VISUAL ELEMENTS**. The elements which determine how the character of a landscape is perceived. *Form*: The shape of objects such as landforms or patterns in the landscape. *Line*: Perceivable linear changes in contrast resulting from abrupt differences in form, color, or texture. *Color*: The reflected light of different wave lengths that enables the eye to differentiate otherwise identical objects. *Texture*: The visual result of variation in the surface of an object.
- CAPITAL VALUE**. As applied to a BLM permit, the value of the permit as a part of ranch capital (e.g., land, machinery, stock, etc.). Changes in allocated AUMs can affect the overall capital value of ranch property. Any change in permitted use has the potential of affecting the livestock permittee's ability to secure a loan and the overall capital value of his property.
- CHANGE AGENT**. Any factor (person, physical force, living entity, chemical, etc.) which affects the primary characteristics of an ecological element, either positively or negatively.
- CLASS OF LIVESTOCK**. Age and/or sex groups of a kind of livestock.
- CHAINING**. The process of manipulating vegetation by pulling an anchor chain between two crawler tractors, thus reducing tall-growing, brittle vegetation and enhancing grasses and forbs.
- COLIFORM**. A general term for a group of bacteria found in the large intestine of man or animals. Its presence in water usually indicates fecal pollution.
- COMPETITIVE FORAGE**. Forage which deer, bison, or antelope use that can also be used by livestock.
- CRUCIAL WILDLIFE HABITAT**. That portion of wildlife habitat that is essential to the survival and perpetuation of a certain species in an area.
- CUBIC FEET PER SECOND** (cfs) (sec. ft.). As a rate of streamflow, a cubic foot of water passing a referenced section in one second of time. One cfs flowing for 24 hours will yield 1.983 acre-feet of water.
- CULTURAL RESOURCES**. Those resources of historical or archaeological significance.
- ECOLOGICAL CONDITION**. The present state of vegetation on a range site in relation to the climax (natural potential) plant community for that site.
- ENDANGERED SPECIES**. Any animal or plant species in danger of extinction throughout all or a significant portion of their range.
- ENVIRONMENT**. The combination of all external influences and conditions affecting the life, development, and ultimate survival of an organism, including man.
- ENVIRONMENTAL ANALYSIS**. A systematic process for consideration of environmental factors in land management actions.
- ENVIRONMENTAL ASSESSMENT** (EA). A concise analysis of the probable environmental effects of proposed activities on Federal lands. The EA is used to determine if significant impacts are probable and preparation of an environmental impact statement (EIS) is necessary. If an EIS is not necessary, the EA identifies mitigation measures that would insure that any impacts from the proposed activities would not have significant adverse impacts on the environment.
- ERODIBILITY**. Susceptibility of a soil to erosion by water or wind. Relative terms are none, slight, moderate, and high.
- EXCHANGE OF USE**. An agreement made with a permittee having ownership or control of private lands interspersed and grazed in conjunction with surrounding Federal range. This agreement specifies the grazing capacity and gives BLM control of the non-Federal land for grazing purposes.
- FORAGE**. Vegetation of all forms available and of a type used for animal consumption.
- FORB**. A broad-leafed herb.
- GENERA**. Plural of genus, which is a group of related species.
- GEOLOGIC EROSION**. Erosion that occurs at rates which are controlled by the natural environment.
- GRAZING CAPACITY**. The maximum stocking rate possible without damaging vegetation or related resources. It may vary from year to year on some areas because of fluctuating forage production.
- GRAZING CAPACITY (ESTIMATED)**. The number of animal unit months of forage available for grazing on a sustained yield basis on the public lands as determined through range studies/surveys. In this EIS, 10-12 years of monitoring and trend studies, supported by a recent soil-vegetation inventory, were used in estimating grazing capacity.
- GRAZING PERMIT**. A document authorizing livestock use of the public lands within grazing districts under provisions of Section 3 of the Taylor Grazing Act.



## GLOSSARY

- GRAZING SYSTEM.** Grazing a range allotment having two or more pastures or management units to provide periodic rest for each unit.
- HABITAT.** A specific set of physical conditions that surround a single species, a group of species, or a large community. In wildlife management, the major components of habitat are considered to be food, water, cover, and living space.
- HABITAT MANAGEMENT PLAN (HMP).** A plan for a geographic area of public lands which identifies wildlife habitat management actions to be implemented to achieve specific objectives.
- IMPACT ANALYSIS (MFP STEP 2).** An analysis of the effects (negative and positive) of a Management Framework Plan Step 1 recommendation on other recommendations, social, economic, institutional, environmental, and other resource values. It is a portion of the multiple use analysis process.
- INTERMITTENT STREAM.** A stream which flows part of the time; usually after a rainstorm, during wet weather, or only part of the year.
- KEY PLANT SPECIES.** A plant that is a relatively or potentially abundant species. It should be able to endure moderately close grazing and serves as an indicator of changes occurring in the vegetational complex. Key plant species are important vegetation components that, if overutilized, will have a significant effect on watershed conditions, grazing capacity, or other resource values. More than one key plant species may be selected on an allotment. For example, one species may be important for watershed protection, and a different species may be important for livestock or wildlife forage.
- LAND TREATMENT.** Changing the characteristics of an established vegetation type for the purpose of improving rangeland forage resources. Treatments are designed for specific areas and differ according to the area's suitability and potential. The most common land treatment methods in the planning area alter the vegetation by chaining, spraying with herbicides, burning, and plowing, followed by seeding with well adapted desirable plant species.
- LAND USE PLAN.** A planning decision document which establishes resource allocations and coordinated objectives and constraints for all forms of public land and resource use within the area covered by the plan.
- LICENSED USE.** The number of AUMs purchased by a livestock permittee from the BLM on an annual basis. In this EIS, 5 years of licensed use have been averaged. The averaged numbers are those referred to in the text, tables, and graphs and are considered to be the present average licensed use.
- LITTER.** A surface layer of organic debris consisting of freshly fallen or slightly decomposed organic material. Litter is important because it covers and protects the soil, reduces runoff rates, increases infiltration, and yields organic matter which improves soil fertility.
- LIVESTOCK OR KIND OF LIVESTOCK.** The species of domestic livestock—cattle, sheep, horses, burros, and goats.
- LIVESTOCK PERMITTEE.** A person or organization legally permitted to graze livestock on public lands.
- MANAGEMENT FRAMEWORK PLAN (MFP).** A land use plan for public lands administered by BLM which provides a set of goals, objectives, and constraints for a specific planning unit or area; a guide to the development of detailed plans for the management of each resource.
- MONITORING.** The collection of data by a systematic and periodic examination of rangeland resources on specific areas by qualified individuals. The techniques or methods are designed to evaluate progress in meeting land use or allotment management planning objectives.
- MONTANE.** Pertaining to mountains.
- MULTIPLE USE.** Management of public lands and their various resource values so that they are used in the combination that will best meet the present and future needs of the American people. Relative values of the resources are considered, not necessarily the combination of uses that will give the greatest potential economic return or the greatest unit output.
- MULTIPLE-USE ANALYSIS (MFP STEP 2).** Includes impact analysis, determination of alternatives, and preparation of multiple-use recommendations.
- MULTIPLE-USE RECOMMENDATIONS.** Program activity recommendations which have been modified by impact analysis or adjustments to resolve minor conflicts, or alternatives to the program activity recommendations developed to resolve conflicts, as a portion of MFP Step 2.
- OBJECTIVES (MFP STEP 1).** Management goals or quantified statements of desired end products (based on Planning Area Analysis projections of social, economic, and environmental values) which provide targets for program accomplishment.
- OCULAR RECONNAISSANCE SURVEY.** A range survey method which inventories vegetation by estimating total forage density, percent composition by species, and total useable forage within the various range types to determine the grazing capacity for livestock and big game (see range survey).
- OFF-ROAD VEHICLE (ORV).** Any motorized vehicle designed for or capable of cross-country travel over land, water, sand, snow, ice, marsh, swampland, or other terrain.
- PASTURE (MANAGEMENT UNIT).** A subdivision of a grazing allotment enclosed and separated from other units by fences and/or natural barriers.
- PELLET GROUPS.** A group of fecal material defecated by an animal (particularly big game) at one time.
- PERENNIAL PLANT.** A plant that has a life cycle of 3 or more years. Because of their longevity, it is desirable to base management on these species.
- PERIOD OF USE.** The times of the year that domestic livestock are allowed to graze on an allotment.
- PERMEABILITY (SOIL).** The ease with which gasses, liquids, or plant roots penetrate or pass through a layer of soil.
- PERMIT.** An authorization which allows grazing on public lands. Permits specify class of livestock on a designated area during specified seasons each year. Permits are of two types: active preference (10 year) and temporary non-renewable (1 year).
- PERMIT VALUE.** BLM-allocated AUMs may be transferred from one permittee to another. The dollar value given by one permittee (buyer) to induce a present permit holder (seller) to transfer his permit is known as the "permit value" of an AUM. This "permit value" may have a significant bearing on the rancher's capital value.
- PHASE, SOIL.** A subdivision of a soil series or other unit in the soil classification system based on differences in the soil that affect its use and management. A soil series, for example, may be divided into phases on the basis of differences in slope, stoniness, thickness, or some other characteristic that affects its use and management. These differences are too small to justify separate series.
- PLANNING AREA.** One or more planning units for which Management Framework Plans are prepared/revised.
- PLANNING AREA ANALYSIS (PAA).** The summary of data on social and economic conditions for a planning unit or area.
- PLANNING UNIT.** A geographic unit within a BLM district which includes related lands, resources, and use pressure problems which are considered together for resource inventory and planning.
- PLANT COMPOSITION.** The mixture of plant species found in a vegetation type or study area usually expressed in percents as related to all other plants species.
- PLANT VIGOR.** The relative well being and health of a plant as reflected by its ability to manufacture sufficient food for growth and maintenance.
- PRIMITIVE RECREATION VALUES.** Environmental features that enhance the quality of unconfined, undeveloped, and unmotorized recreation (i.e., hiking, backpacking, cross-country skiing, etc.). A general description would be scenic, undeveloped lands essentially removed from the effects of civilization with opportunities for solitude.
- PRIOR STABLE LEVEL.** A number derived from deer population dynamics data from the average of 10 or more years when



- deer populations were stable and at or near the grazing capacity of the range of a given deer herd unit.
- PROPER USE FACTOR (PUF).** The percent of the current year's growth of a forage plant that may be removed when the range is properly used. The proper use factor of any given plant species is dependent on (1) associated species; (2) kind of animals; (3) period of use; (4) year; (5) past grazing use; and (6) animal preference.
- PUBLIC LAND.** Formal name for lands administered by the Bureau of Land Management.
- PUBLIC PARTICIPATION.** The process of attaining citizen input into each stage of development of the Unit Resource Analysis and Management Framework Plan. It is required as a major input into the BLM's planning system.
- RAIN SHADOW.** A region of reduced rainfall to the lee of high mountains.
- RANGELAND.** Land that is dominated by vegetation that is useful for grazing and browsing by animals. "Range" and "rangeland" are used interchangeably, but the latter is preferred because it connotes a multiple-use concept, including fish and wildlife habitat, soil and water resources, livestock production, wild horse and burro habitat, and other public resource values associated with vegetation.
- RANGELAND DEVELOPMENTS.** Range facilities such as stockwater developments, fences, trails, etc., used to more effectively manage grazing.
- RANGELAND IMPROVEMENTS.** Any activity or program on or relating to rangelands which is designed to improve forage production, change vegetation composition, control patterns of use, provide water, stabilize soil and water conditions, and enhance habitat for livestock, wildlife, and wild horses and burros. Rangeland improvements include land treatments (i.e., chaining, seeding, burning, etc.), stockwater developments, fences, and trails to more effectively manage grazing.
- RANGELAND SURVEY/STUDIES.** An inventory of the range resources including production of plant materials, plant composition, range use, physical features, and natural conditions such as water, barriers, etc., for the purpose of estimating ecological conditions, trends in condition, estimated proper stocking rates, etc., useful to management planning.
- RAPTORS.** Birds of prey such as the eagle, hawk, owl, or vulture.
- REDUCTION.** Placing a portion of a grazing preference in suspended status because the currently authorized use exceeds the available grazing capacity.
- REGION.** May be any geographic area larger than a planning area (Social-Economic Profile Area, sub-State, State, multi-State, or National), which is appropriate for comparative area analysis and for which information is available. Regions may be different for different resources or subject matter analysis.
- RESEEDING SUCCESS.** Rating of soils as to percent probability of success for rangeland seeding. A relative rating of successful seeding establishments that might be expected during a given period of years.
- RESOURCE AREA.** A manageable geographic subdivision of a district consisting of one or more planning areas.
- RESOURCES.** A product of the earth or biosphere capable of serving, supplying, or supporting some human purpose or need.
- RIPARIAN VEGETATION.** Vegetation growing near streams, reservoirs, ponds, etc. (permanent or intermittent). It is usually unique or limited in arid regions and is, therefore, of great importance to a wide variety of wildlife.
- RIPARIAN HABITAT.** The native environment supporting plants that are adapted to moist growing conditions found along waterways, ponds and generally moist-growing conditions.
- SEASON-LONG GRAZING.** Grazing a range allotment or management unit (pasture) continuously for a specified period of time (e.g., June 15-September 30).
- SEDIMENT YIELD.** The amount of mineral or organic soil material that is in suspension, is being transported, or has been moved from its site of origin.
- SENSITIVE SPECIES.** Species not yet officially listed but which are undergoing status review for listing on the official threatened and endangered list; species whose populations are small and widely dispersed or restricted to a few localities; and species whose numbers are declining so rapidly that official listing may be necessary.
- SHRUB.** A plant that has a persistent, woody stem, a relatively low growth habit, and generally produces several basal shoots instead of a single trunk.
- SOIL ASSOCIATION.** A group of defined and named soil units occurring together in individual and characteristic patterns over a geographic region.
- SOIL CLASSIFICATION.** The systematic arrangement of soils into classes in one or more categories or levels of classification for a specific objective. Broad groupings are made on the basis of general characteristics and subdivisions on the basis of more detailed differences in specific properties.
- SOIL SURFACE FACTOR (SSF).** A numerical expression of surface erosion activity caused by wind and water as reflected by soil movement, surface litter, erosion pavement, pedestalling, rills, flow patterns, and gullies. Values may vary from 0 for no erosion to 100 for severe erosion conditions.
- SOIL-VEGETATION INVENTORY.** A uniform, systematic method for inventory of soil and vegetation resources and collecting data for use in planning and environmental assessments. The Bureau of Land Management and Earth Environmental Consultants, Inc., conducted an inventory of the planning area during 1978-1980. (Also, see range survey.)
- STATE LANDS.** Lands owned by the State of Utah: school lands, sovereign lands, and lands acquired for special purposes.
- STOCKING.** The degree to which an allotment is stocked with livestock and big game, usually expressed in AUMs.
- STRATA.** A rangeland unit homogeneous in respect to vegetation composition, forage production, ecological condition, and soils.
- STRATIFICATION.** The classification of rangeland into homogeneous units based on likenesses in factors such as vegetation composition, productivity, ecological condition, and soils.
- SUBSTANTIAL VALUE YEARLONG RANGE.** Existence area for one or more species of high interest wildlife.
- SUITABILITY.** The adaptability of an area to grazing by livestock or wildlife. The adaptability of a particular plant or animal species to a given area.
- SUITABLE RANGE.** Range accessible to livestock and which can be grazed on a sustained yield basis without damage to the resource. The limits of adaptability of plant or animal species.
- SUSPENDED PREFERENCE.** That portion of the recognized grazing preference which is placed in a suspended category because the preference exceeds the present available livestock grazing capacity.
- SUSPENSION.** Temporarily withholding, in whole or in part, grazing use authorized under a grazing permit, lease, or other grazing use authorization.
- TAXA.** Any taxonomic unit, as an order, genus, variety, etc.
- THREATENED SPECIES.** Any animal or plant species likely to become endangered within the foreseeable future throughout all or a significant portion of its range.
- TREND IN RANGE CONDITION.** An interpretation of the direction of change in rangeland condition based on multiple observations over a long period of time.
- UNALLOTTED LANDS.** Those lands not allocated to a specific use (i.e., livestock grazing).
- UNIT RESOURCE ANALYSIS (URA).** A compilation of physical resource data and an analysis of the current use, production, condition, and trend of the resource and the potentials and opportunities within a planning unit or area, including a profile of ecological values.
- UNSUITABLE RANGE.** An area which may have value for wildlife but has no value for, or should not be used by, livestock because of steep topography, barrenness, dense timber, lack of forage, or unstable soils.



**VEGETATION.** All living plant matter.

**VEGETATION UTILIZATION.** The proportion of the current year's forage production that is consumed or destroyed by grazing animals. This may refer either to a single species or to the whole vegetation complex. Utilization is expressed as a percent by weight, height, or numbers within reach of the grazing animal.

**VISUAL RESOURCE MANAGEMENT (VRM) SYSTEM.** Classification containing specific objectives for maintaining or enhancing visual resources, including the kinds of structures and modifications acceptable to meet established visual goals.

**WETLANDS.** Lands including swamps, marshes, bogs, and similar areas such as wet meadows, river overflows, mud flats, and natural ponds.



## REFERENCES CITED

- Ames, C. R. 1977. "Wildlife Conflicts in Riparian Management: Grazing. In: Importance, Preservation, and Management of Riparian Habitat: A Symposium." U.S. Department of Agriculture, Forest Service General Technical Report RM-43:49-51. Ft. Collins, Colorado.
- Anderson, E. W. 1972. "Acreage Increase Due to Slope." *Journal of Range Management*. 25(4):316-317. Society for Range Management, Denver, Colorado.
- Arizona Interagency Range Committee. 1972. *Proper Use and Management of Grazing Land*. pp. 12-37.
- Bagley, Verl. 1982. "Current Market Value of BLM Permits and Current Prices Paid and Received" (personal communication). Wayne County Extension Agent, Loa, Utah.
- Bates, Jim and Dalton, Larry. 1981. "Big Game Populations on the Henry Mountains" (personal communication). May 19, 1981. Utah Division of Wildlife Resources, Price Utah.
- Bedell, T. E. 1982. "Grazing to Maintain a Healthy Range." *Cow-Calf Management Guide*. Cattleman's Library CL525. Published by the Cooperative Extension Service, Colorado, Idaho, Utah, Montana, Oregon, Washington, Wyoming.
- Bohwahn, Fred. 1981. "Federally Designated Critical Habitat for Threatened/Endangered Species Within the Henry Mountain Planning Area" (personal communication). February 11, 1981. U.S. Department of Interior, Fish and Wildlife Service, Area Office. Salt Lake City, Utah.
- Boos, Paul G. 1976. "Little Rockies Field Inventory and Reconnaissance" (unpublished document). U.S. Department of Interior, Bureau of Land Management, Richfield District. Richfield, Utah.
- Bowns, James. 1983. "Utilization of Blackbrush by Cattle" (personal communication). March 10, 1983. Southern Utah State College. Cedar City, Utah.
- Brady, Nyle C. 1974. *The Nature and Properties of Soils*. 8th Edition. Macmillan Publishing Company., Inc.
- Brown, Bruce R. and Kissel, David. 1979. "Range Management Visual Impacts" (in Proceedings of Our National Landscape). A Conference on Applied Techniques for Analysis and Management of the Visual Resource. September 1979. Pacific Southwest Forest and Range Experiment Station, U.S. Department of Agriculture, Forest Service. Berkeley, California. 5 pp.
- Buchanan, Jim. 1981. "Feral Goats on Henry Mountains" (personal communication). September 1981. U.S. Department of Interior, Bureau of Land Management, Richfield District Office. Richfield, Utah.
- Buckhouse, J. C. and Gifford, G. F. 1976. "Sediment Production and Infiltration Rates as Affected by Ground and Debris Burning on Chained and Seeded Pinyon-Juniper." *Journal of Range Management*. Volume 29, Number 1. Society for Range Management, Denver, Colorado.
- Call Engineering, Inc. 1976. "Final Report, Wayne County Master Planning Project" (unpublished document). Salt Lake City, Utah. 48 pp.
- Cook, C. Wayne 1966. "Factors Affecting Utilization of Mountain Slopes by Cattle." *Journal of Range Management*. 19:200-204. Society for Range Management, Denver, Colorado.
- Cook, C. Wayne. 1970. *Energy Budget of Range and Range Livestock*. Colorado State University, Experiment Station, Bulletin TB 109. Ft. Collins, Colorado.
- Cook, C. Wayne. 1971. *Effects of Season and Intensity of Use on Desert Vegetation*. Bulletin No. 483. March 1971. Utah Agricultural Experiment Station, Utah State University, Logan, Utah. 57 pp.
- Cook, C. Wayne. 1972. *Comparative Nutritive Values of Forbs, Grasses, and Shrubs*. U.S. Department of Agriculture, Forest Service. pp. 303-310.
- Cook, C. Wayne and Harris, Lorin E. 1968a. *Nutritive Value of Seasonal Ranges*. Utah Agricultural Experimental Station Bulletin 472. Utah State University, Logan, Utah.
- Cook, C. Wayne and Harris, Lorin E. 1968b. *Effects of Supplementation on Intake and Digestibility of Range Forage*. Utah Agricultural Experimental Station Bulletin 475. Utah State University, Logan, Utah.
- Cook, C. Wayne; Child, R. D.; and Larson, L. L. 1977. *Digestible Protein in Range Forages as an Index to Nutrient Content and Animal Response*. Science Series No. 29. December 1977. Colorado State University, Range Science Department. Ft. Collins, Colorado. 65 pp.
- Dalton, L. B.; Farnsworth, C. B.; Smith, R. B.; Wallace, R. C.; Wilson, R. B.; and Winegardner, S. C. 1978. *Vertebrate Species of Southeastern Utah*. Utah State Division of Wildlife Resources, Salt Lake City, Utah. 68 pp.
- Davis, Vernon. 1983. "History of Little Rockies Unallotted Area" (personal communication). January 11, 1983. U.S. Department of Interior, Bureau of Land Management, Sevier River Resource Area. Richfield, Utah.
- DePaepe, Duane. 1981. "Henry Mountain Resource Area Unit Resource Analysis, Social Attitudes and Expectations Sampling" (unpublished document). February 2, 1981. U.S. Department of Interior, Bureau of Land Management, Richfield District Office. Richfield, Utah.
- Edmonds, Roy and DePaepe, Duane. 1981. "Attitudes and Expectations of User Groups in Henry Mountain Resource Area" (unpublished document). April 13, 1981. U.S. Department of Interior, Bureau of Land Management, Richfield District Office. Richfield, Utah.
- Ellison, L. 1960. "Influence of Grazing on Plant Succession of Rangeland." *Botanical Review*. Edition 26. 78 pp.
- Environmental Applications. 1981. "Final Report—Climate of the Henry Mountain Resource Area." Environmental Applications Division, Science Applications, Inc., LaJolla, California. pp. 116.
- Environmental Research and Technology, Inc. 1977. "Regional Air Quality Analysis in the State of Utah and Surrounding Regions." Environmental Research and Technology, Inc. Concord, Massachusetts. pp. 10-20.
- Felthousen, Richard. 1981. "Estimate of Current Bison Numbers on the Henry Mountain Planning Area." (unpublished document). U.S. Department of Interior, Bureau of Land Management, Richfield District, Richfield, Utah. 5 pp.
- Fisher, C. E. and Marion, P. T. 1951. "Continuous and Rotation Grazing on Buffalo and Tobosa Grassland." *Journal of Range Management*. 4(1). Society for Range Management, Denver, Colorado. pp. 48-55.
- Frischknecht, Neil and Stevens, Richard. 1979. "Field Notes" (personal communication). November 1979. U.S. Department of Agriculture, Forest Service, Forest and Range Experiment Station, Provo and Ephraim, Utah.
- Gallizioli, Steve. 1977. "Overgrazing on Desert Bighorn Ranges." *Transactions of the Desert Bighorn Council*. 21:21-23. pp. 21-23.
- Gifford, G. F. 1975. "Beneficial and Detrimental Effects of Range Improvement Practices on Runoff and Erosion." Proceedings of American Society of Civil Engineering Symposium on Watershed Management. Utah State University, Logan, Utah.



## REFERENCES CITED

- Goodwin, G. A. 1975. *Seasonal Food Habits of Mule Deer in Southeastern Wyoming*. U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station. Ft. Collins, Colorado.
- Guisti, Vince. 1977. "Water Resources—IPP Project Technical Report" (unpublished document). April 3, 1977. U.S. Department of Interior, Geological Survey, Salt Lake City, Utah.
- Harner, R. F. and Harper, K. T. 1973. "Mineral Composition of Grassland Species of the Eastern Great Basin in Relation to Stand Productivity." *Canadian Journal of Botany*. Edition 51. pp. 2037-2046.
- Havstad, Kris M.; Mastis, Anastasios S.; and Malechek, John C. 1983. *The Voluntary Intake of Heifers Grazing a Diminishing Supply of Crested Wheatgrass*. Montana State University, University of Thessaloniki, Greece, and Utah State University, Logan, Utah.
- Hayward, C. L.; Cottom, C.; Woodbury, A. M.; and Frost, H. H. 1976. *Great Basin Naturalist Memoirs: Birds of Utah*. Brigham Young University Press. Provo, Utah. 229 pp.
- Heady, H. H. 1975. *Range Management*. 3rd Edition. pp. 117-131.
- Herbel, C. H. and Nelson, A. B. 1966. "Activities of Hereford and Santa Gertrudis Cattle on a Southern New Mexico Range." *Journal of Range Management*. 19:173-176. Society for Range Management, Denver, Colorado.
- Herbel, Carlton H. 1982. "Grazing Management on Rangelands." *Journal of Soil and Water Conservation*. Soil Conservation Society of America. pp. 77-79.
- Hill, R. R. 1969. "Forage, Food Habits and Range Management of the Mule Deer." *The Deer of North America*. The Stackpole Company, Harrisburg, Pennsylvania. pp. 393-414.
- Horton, J. S. and Campbell, C. J. 1974. *Management of Phreatophyte and Riparian Vegetation for Maximum Multiple Use Values*. U.S. Department of Agriculture, Forest Service Research Paper RM-117. Ft. Collins, Colorado. 23 pp.
- Hubbard, J. P. 1977. "Importance of Riparian Ecosystems: Biotic Considerations." *Importance, Preservation, and Management of Riparian Habitat: A Symposium*. U.S. Department of Agriculture, Forest Service General Technical Report RM-43. Ft. Collins, Colorado. 217 pp.
- Hubbard, William A. 1951. "Rotational Grazing Studies in Western Canada." *Journal of Range Management*. 4(1). Society for Range Management. Denver, Colorado. pp. 25-29.
- Hunt, C. B.; Averith, P.; and Miller, R. L. 1953. "Geology and Geography of the Henry Mountain Region." Professional Paper No. 228. 234 pp.
- Hutchings, Selar S. and Stewart, George. 1953. *Increasing Forage Yields and Sheep Production on Intermountain Winter Ranges*. Circular 925. U.S. Department of Agriculture, Washington, D.C.
- Hyder, Donald N. and Sawyer, W. A. 1951. "Rotation-Deferred Grazing as Compared to Seasonlong Grazing on Sagebrush-Bunch Grass Range in Oregon." *Journal of Range Management*. 4(1). Society for Range Management, Denver, Colorado. pp. 30-34.
- Jacobson, Kib E. 1981. "The Economic Impact of Potential Changes in Federal Grazing Policies on Ranchers in Wayne County, Utah." M.S. Thesis. Utah State University, Logan, Utah.
- Johnson, W. M. 1956. "The Effect of Grazing Intensity on Plant Composition, Vigor, and Growth of Pine Bunchgrass Ranges in Central Colorado." *Ecology*. Edition 37. pp. 290-298.
- Johnson, W. M. 1966. "Effects of Stocking Rates and Utilization on Herbage Production and Animal Response on Natural Grasslands." *Proceedings of the X International Grasslands Congress*. pp. 944-947.
- Johnstone-Wallace, D. B. and Kennedy, Keith. 1944. "Grazing Management Practices and Their Relationship to the Behavior and Grazing Habits of Cattle." *Journal of Agricultural Science*. 34:190-197.
- Julander, O.; Robinette, W. L.; and Jones, D. A. 1961. "Relation of Summer Range Condition to Mule Deer Herd Productivity." *Journal of Wildlife Management*. Edition 25. Allen Press Publications, Lawrence, Kansas. pp. 54-60.
- Kammerer, Wayne T. 1982. "Projected Hunter Day Estimates" (unpublished document). May 1982. U.S. Department of Interior, Bureau of Land Management, Richfield District, Richfield, Utah.
- Kammerer, Wayne T. 1983. "Coordination With Glen Canyon NPS Regarding the Henry Mountain Grazing EIS" (unpublished document). March 11, 1983. U.S. Department of Interior, Bureau of Land Management, Richfield, District. Richfield, Utah.
- Kufeld, R. C.; Wallmo, O. C.; and Feddema, Charles. 1973. *Foods of the Rocky Mountain Mule Deer*. U.S. Department of Agriculture, Forest Service, Fort Collins, Colorado. 31 pp.
- Longhurst, W. M.; Leopold, A. S.; and Dasmann, R. F. 1952. *A Survey of California Deer Herds, Their Ranges and Management Problems*. California Department of Fish and Game. Sacramento, California.
- Lowry, Bert. 1974. "1974 Henry Mountain Management Framework Plan" (unpublished document). U.S. Department of Interior, Bureau of Land Management, Richfield District, Richfield, Utah.
- Lusby, Gregg C. 1970. "Hydrologic and Biotic Effects of Grazing Vs. Non-Grazing Near Grand Junction, Colorado." *Journal of Range Management*. Volume 23, Number 4. July 1970. Society for Range Management, Denver, Colorado. pp. 256-260.
- McIlvaine, E. H. and Savage, D. A. 1951. "Eight Year Comparisons of Continuous and Rotational Grazing on the Southern Great Plains Experimental Range." *Journal of Range Management*. 4(1). Society for Range Management, Denver, Colorado. pp. 42-47.
- McIlvaine, Samuel K. 1942. "Carbohydrate and Nitrogen Trends in Bluebunch Wheatgrass (*Agropyron spicatum*) with Special Preference to Grazing Influences." *Plant Physiology*. Volume 17, pp. 540-557.
- McInnis, M. L. 1977. "A Comparison of Four Methods Used in Determining the Diets of Large Herbivores." M.S. Thesis. Oregon State University, Corvallis, Oregon. 127 pp.
- Marston, Richard B. 1952. "Ground Cover Requirements for Summer Storm Runoff Control on Aspen Sites in Northern Utah." *Journal of Forestry*. 50:303-307.
- Meehan, William R. and Platts, William S. 1978. "Livestock Grazing and the Aquatic Environment." *Journal of Soil and Water Conservation*. Volume 33, Number 6. November 12, 1978. Soil Conservation Society of America. Ankeny, Iowa. pp. 274-277.
- Meinke, Robert. 1975. "A Preliminary Ecological and Historical Survey of North and South Caineville Mesas, Wayne County, Utah" (unpublished document). U.S. Department of Interior, Bureau of Land Management, Richfield, Utah. 127 pp.
- Morrison, Frank B. 1959. *Feeds and Feeding*. The Morrison Publishing Company. Clinton, Iowa. 1,165 pp.
- Mueggler, W. F. 1975. "Rate and Pattern of Vigor Recovery in Idaho Fescue and Bluebunch Wheatgrass." *Journal of Range Management*. Volume 31, Number 3. May 1975. Society for Range Management, Denver, Colorado.
- Mundorf as cited by Uintex Corporation. 1981. "A Henry Mountain Resource Area Report Part 1—A Reconnaissance of Water Resources of the Henry Mountain Coal Field, Utah. Part 2—Impacts of Possible Coal Developments on the Water Resources" (unpublished document). December 1981. Salt Lake City, Utah.
- Mutz, Kathryn M.; Neese, Elizabeth; Miller, James L.; Jacob, Gerald R. 1982. "Sclerocactus Wrightiae Technical Review Draft Recovery Plan" (unpublished document). October 1982. 32 pp.
- National Academy of Science. 1976. *Nutrient Requirements of Beef Cattle*. No. 4, Fifth Edition. National Academy of Science, Washington, D.C. 56 pp.



## REFERENCES CITED

- Natural Resources Defense Council. 1977a. "Contents of EISs in General and Specific Comments on Challis, Idaho, and San Luis, Colorado, EISs" (personal communication). January 7, 1977. 11 pp.
- Natural Resources Defense Council. 1977b. "Preliminary Draft Tonopah EIS" (personal communication). January 11, 1977. 14 pp.
- Neese, Elizabeth J., PhD. 1981. "A Vascular Flora of the Henry Mountains Utah." PhD Thesis. April 1981. Brigham Young University: Provo, Utah. 356 pp.
- Nelson, Kendall L. 1965. "Status and Habits of the American Buffalo in the Henry Mountain Area of Utah." MS Thesis. Utah State University, Logan, Utah. 142 pp.
- Ninety-Second Congress. 1971. *An Act to Establish the Capitol Reef National Park in the State of Utah*. Public Law 92-207. December 18, 1971. U.S. Government Printing Office, Washington, D.C.
- Odum, Eugene P. 1971. *Fundamentals of Ecology*. Third Edition. pp. 45, 56-57.
- Osborn, Ben. 1956. "Cover Requirements for the Protection of Range Site and Biota." *Journal of Range Management*. 9(2):75-80. Society for Range Management, Denver, Colorado.
- Osuji, P. O. 1974. "The Physiology of Eating and the Energy Expenditure of the Ruminant at Pasture." *Journal of Range Management*. 27(6):437-443. Society for Range Management, Denver, Colorado.
- Packer, Paul E. 1953. "Effects of Trampling Disturbance on Watershed Condition, Runoff, and Erosion." *Journal of Forestry*. 51:28-31.
- Peden, D. G.; Van Dyne, G. M.; Rice, R. W.; and Hansen, R. M. 1974. "The Trophic Ecology of Bison on Shortgrass Plains." *Applied Ecology* 11(2):489-497.
- Pederson, J. C. and Harper, K. T. 1978. "Factors Influencing Productivity of Two Mule Deer Herds in Utah." *Journal of Range Management*. Society for Range Management, Denver, Colorado. pp. 15-110.
- Phillips, T. A. 1965. *The Influence of Slope Gradient, Distance From Water and Other Factors on Livestock Distribution on National Forest Cattle Allotments of the Intermountain Region*. U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station Range Improvement Notes. 10:9-19. Ogden, Utah.
- Pieper, R. D. and Beck, R. F. 1980. "Importance of Forbs on Southwestern Ranges." *Rangelands*. Society for Range Management, Denver, Colorado. pp. 35-36.
- Plummer, Perry A.; Christensen, Donald R.; and Monsen, Stephen B. 1968. *Restoring Big Game Range in Utah*. Project No. W-82-R. Utah Division of Fish and Game, and U.S. Department of Agriculture, Forest Service. Publication No. 68-3. Salt Lake City, Utah.
- Ritchie, Dee; Grossi, Bill; and Bates, Jim. 1980. "Range Suitability Standards and Criteria for Bison" (unpublished document). U.S. Department of Interior, Bureau of Land Management, Richfield District. Richfield, Utah. 18 pp.
- Roath, Leonard Roy and Krueger, William C. 1982. "Cattle Grazing Influence on a Mountain Riparian Zone." *Journal of Range Management*. Vol. 35, No. 1. January 1982. Society for Range Management, Denver, Colorado. pp. 100-103.
- Robinson et al. 1982. "Forage Assignments to Livestock and Bison Based on the Soil-Vegetation Inventory and Monitoring Studies" (unpublished document). August 1982. U.S. Department of Interior, Bureau of Land Management, Richfield District Office, Richfield, Utah.
- Robinson, Max E. 1979. "Field Notes and Records on Range and Watershed Rehabilitation Project" (unpublished document). From 1940 through 1976. U.S. Department of Interior, Bureau of Land Management, Richfield District Office, Richfield, Utah.
- Robinson, Max E. 1983. "Forage Requirements for Livestock for the Henry Mountain Planning Area" (unpublished document).
- U.S. Department of Interior, Bureau of Land Management, Richfield District. Richfield, Utah. 2 pp.
- Rogler, George A. 1951. "A Twenty-Five Year Comparison of Continuous and Rotation Grazing in the Northern Great Basins." *Journal of Range Management*. 4(1). Society for Range Management, Denver, Colorado. pp. 35-41.
- Sampson, Arthur W. 1951. "A Symposium of Rotation Grazing in North America." *Journal of Range Management*. 4(1). Society for Range Management, Denver, Colorado. pp. 25-29.
- Severinghaus, C. W. and Cheatum, E. L. 1956. *Life and Times of the White-tailed Deer*. Stackpole Company. Harrisburg, Pennsylvania. pp. 57-186.
- Smeins, Fred E. 1975. "Effects of Livestock Grazing on Runoff and Erosion." *Journal of Range Management*. Society for Range Management. Denver, Colorado.
- Smith, J. G. 1952. "Food Habits of Mule Deer in Utah." *Journal of Wildlife Management*. Allen Press Publications, Lawrence, Kansas. 16(2). pp. 148-155.
- Society for Range Management. 1974. *A Glossary of Terms Used in Range Management*. Second Edition. Denver, Colorado. 36 pp.
- Society for Range Management. 1981. "Establishing Management Under the Taylor Grazing Act." *Rangelands*. Vol. 3, No. 3. Society for Range Management, Denver Colorado. pp. 105-115.
- Stanton, William D. 1931. "A Preliminary Report of the Henry Mountains." M.S. Thesis. Brigham Young University, Provo, Utah.
- Stoddart, L.A. and Smith, A. D. 1955. *Range Management*. Second Edition. McGraw-Hill Book Co. New York, New York.
- Stoddart, L. A.; Smith, A. D.; and Box, T. W. 1975. *Range Management*. Third Edition. McGraw-Hill Book Co. New York, New York.
- Swank, W. G. 1958. *The Mule Deer in Arizona Chaparral*. Bulletin No. 3. Arizona Game and Fish Department, Phoenix, Arizona. 109 pp.
- Trout, L. E. and Thiessen, J. L. 1968. "Food Habits and Condition of Mule Deer in Owyhee County." Proceedings of the Western Association State Fish Game Commission. 48:188-200. Sacramento, California.
- U.S. Department of Agriculture, Forest Service. 1977. *A Report on the Value of Wildlife*. December 1, 1977. Intermountain Region, Ogden, Utah.
- U.S. Department of Agriculture, Forest Service. 1982a. "IMPLAN—Economic Input/Output Model" (unpublished document). Richfield District, Richfield, Utah.
- U.S. Department of Agriculture, Forest Service. 1982b. *Managing Intermountain Rangelands*. Intermountain Forest and Range Experiment Station, Ogden, Utah. p. 12.
- U.S. Department of Agriculture, Forest Service. 1982c. *Range Management Information System Handbook*. July 19, 1982. Washington, D.C.
- U.S. Department of Agriculture, Soil Conservation Service. 1976. *National Range Handbook USDA*. July 13, 1976. Washington, D.C.
- U.S. Department of Commerce, Bureau of the Census. 1981a. *Regional Economics Information System*. April 1981. U.S. Department of Commerce. Washington, D.C.
- U.S. Department of Commerce, Bureau of the Census. 1981b. *1980 Census of Populations and Housing*. March 1981. U.S. Department of Commerce. Washington, D.C.
- U.S. Department of Commerce, Bureau of the Census. 1981c. *1978 Census of Agriculture: State and County Data, Utah*. Volume I, Part 44. May 1981. Washington, D.C.
- U.S. Department of Interior, Bureau of Land Management. 1974. "Management Framework Plan—Henry Mountain Planning Area" (unpublished document). Hanksville, Utah.
- U.S. Department of Interior, Bureau of Land Management. 1977. *U-95 Corridor Study*. February 1977. Utah State Office, Salt Lake City, Utah. pp. 2-3.



## REFERENCES CITED

- U.S. Department of Interior, Bureau of Land Management. 1980. "Forage Requirements Used in Calculated Soil-Vegetation Inventory Data or Similar Weight Estimate Survey Data" (personal communication). May 14, 1980. Richfield, Utah.
- U.S. Department of Interior, Bureau of Land Management. 1981a. "Public Comment File, Henry Mountain Planning Alternatives" (unpublished document). Richfield District Office, Richfield, Utah.
- U.S. Department of Interior, Bureau of Land Management. 1981b. "Microhistological Analyses of Rumen Samples Collected During the 1980 Bison Hunt" (unpublished document). Colorado State University. Ft. Collins, Colorado.
- U.S. Department of Interior, Bureau of Land Management. 1982a. "Management Framework Plan, Henry Mountain Planning Area" and "Unit Resource Analysis, Henry Mountain Planning Area" (unpublished documents). Richfield District Office, Richfield, Utah.
- U.S. Department of Interior, Bureau of Land Management. 1982b. *Multiple Use Management Decisions, Henry Mountain Planning Area*. May 1982. Richfield District Office, Richfield, Utah. 24 pp.
- U.S. Department of Interior, Bureau of Land Management. 1982c. "Final Grazing Management Policy" (personal communication). March 5, 1982. Washington Office, Washington, D.C.
- U.S. Department of Interior, Bureau of Land Management and Earth Environmental Consultants, Inc. 1980. "Soil-Vegetation Inventory Method (SVIM) in the Henry Mountain Planning Unit, Utah" (unpublished document). Volumes 1 and 2. May 1980. U.S. Department of Interior, Bureau of Land Management, Richfield District. Richfield, Utah.
- U.S. Department of Interior, Fish and Wildlife Service. 1982. "Biological Opinion—White River Dam Project, Utah" (unpublished document). February 24, 1982. Salt Lake City, Utah. 16 pp.
- U.S. Department of Interior, Heritage Conservation and Recreation Service. 1979. *Federal Register*. Volume 44, No. 225. November 20, 1979. U.S. Government Printing Office, Washington, D.C.
- U.S. Department of Interior, National Park Service. 1970. "Report of Meeting With National Park Service, Bureau of Reclamation, and Bureau of Land Management to Discuss Common Problems in the Lake Powell area and Extensions of Capiol Reef National Park and Arches National Monument in Utah" (unpublished document). February 18, 1970. Richfield, Utah.
- U.S. Department of Interior, National Park Service. 1974. "Environmental Review of Phasing Out Grazing in Capiol Reef National Park, Utah" (unpublished document). December 16, 1974. Richfield, Utah.
- U.S. Department of Interior, National Park Service. 1979. *Proposed General Management Plan Wilderness Recommendation, Road Study Alternatives, Final EIS*. Glen Canyon National Recreation Area/Arizona-Utah. Denver, Colorado. 347 pp.
- U.S. Department of Interior, National Park Service. 1982. *Final Environmental Impact Statement, General Management Plan, Statement of Findings*. October 1982. U.S. Government Printing Office, Washington, D.C. p. E-9.
- U.S. Department of Interior, National Park Service and Bureau of Land Management. 1973. "Memorandum of Understanding Between National Park Service, Utah State Office, and Bureau of Land Management, Utah State Office" (unpublished document). February 1, 1973. Salt Lake City, Utah.
- University of Utah, Bureau of Community Development. 1979. "Garfield County, Utah, A Master Plan for Development" (unpublished document). Salt Lake City, Utah. 89 pp.
- Utah Department of Employment Security. 1982. *Labor Market Information: Central District*. Salt Lake City, Utah.
- Utah Division of Wildlife Resources. 1980a. *The 1979 Utah Big Game Harvest Book*. April 20, 1980. Salt Lake City, Utah. 74 pp.
- Utah Division of Wildlife Resources. 1980b. "Map Overlay System." Price, Utah.
- Utah Division of Wildlife Resources. 1981a. *The 1980 Utah Big Game Harvest Book*. April 1, 1981. Salt Lake City, Utah. 77 pp.
- Utah Division of Wildlife Resources. 1981b. *The 1981 Utah Big Game Investigations and Management Recommendations Book*. Salt Lake City, Utah.
- Utah Division of Wildlife Resources. 1981c. "Current Estimates of Big Game Populations" (personal communication). Price, Utah.
- Utah Division of Wildlife Resources. 1982. *The 1981 Utah Big Game Harvest Book*. April 1, 1982. Salt Lake City, Utah. 82 pp.
- Utah Highway Patrol. 1981. "Responsibility in the Event of Vehicle-Domestic Livestock Collisions in Open Range Areas" (personal communication). May 26, 1981. Hanksville, Utah.
- Vallentine, John F. 1974. *Range Development and Improvements*. Brigham Young University Press. Provo, Utah.
- Van Vuren, Dirk. 1979a. *Size and Distribution of the Henry Mountain Bison Herd During Summer 1979*. October 16, 1979. U.S. Department of Interior, Bureau of Land Management, Richfield, Utah. 7 pp.
- Van Vuren, Dirk. 1979b. *Status, Ecology, and Behavior of Bison in the Henry Mountains, Utah*. May 16, 1979. U.S. Department of Interior, Bureau of Land Management, Richfield, Utah.
- Van Vuren, Dirk. 1983. "Diets of Bison and Cattle on a Seeded Range in Southern Utah" (unpublished document). Prepared by Department of Systematics, Kansas University, Lawrence, Kansas. Prepared for U.S. Department of Interior, Bureau of Land Management, Richfield, Utah.
- Van Vuren, Dirk and Bray, Martin P. 1983. "Diets of Bison and Cattle on a Seeded Range in Southern Utah." *Journal of Range Management*. Society for Range Management, Denver, Colorado.
- Verme, L. J. 1962. "Mortality of White-tailed Deer Fawns in Relation to Nutrition." *Proceedings of National Deer Dis. Symposium*. pp. 15-38.
- Welsh, S. L. 1979. *Illustrated Manual of Proposed Endangered and Threatened Plants of Utah*. U.S. Department of Interior, Fish and Wildlife Service and Bureau of Land Management, and U.S. Department of Agriculture, Forest Service. U.S. Government Printing Office, Washington, D.C. 318 pp.
- Wilson, L. O. 1971. "The Effect of Free Water on Desert Bighorn Home Range." *Transactions of the Desert Bighorn Council*. Santa Fe, New Mexico. pp. 82-89.
- Yates, David A. and Schoonover, C. O. 1982. "Nutrition Management of the Productive Mature Beef Cow." *Cow-Calf Management Guide*. Cattleman's Library CL330. Published by the Cooperative Extension Service, Colorado, Idaho, Montana, Oregon, Utah, Washington, and Wyoming.
- Yoakum, J. 1965. "Life and Death of Deer Herds" (unpublished document). University of California Agriculture Extension Service Deer Seminars. pp. 11-19.



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